UNIVERSIDADE CATÓLICA PORTUGUESA

Equity Valuation

Valuing Semapa as the Sum of the Parts

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Portucel/Semapa

Semapa: An Active Equity Player

Semapa is a holding company currently owning (1) 75,85% of the pulp and paper producer Portucel, representing more than 90% of Semapa's 2011 net profit (excluding holding costs); (2) 100% of the cement company Secil, which accounted for 8% of its 2011 net profit (excluding holding costs) when it just owned 51%; and (3) 96% of a small business related with the environment, ETSA, which contributed to less than 2% to Semapa's 2011 net profit (excluding holding costs).

Semapa completed its most recent acquisition on May, 2012, when it bought the remaining 49% of Secil.

♦ **Portucel – still rocks.** UWF paper and BEKP prices are currently 1% and 9% higher, respectively, than the last year's average. The expected demand drop should be offset by the last year's shutdowns in the industry, supporting higher paper volumes, although intensive competition from Asia is expected. With the new paper machine implemented in 2009, Portucel considerably reduced its exposure to the pulp prices, which presented a volatility of 116% during the past 11 years. With the capacity shutdowns in the industry and the need for more pulp to be integrated in the paper production, Portucel expects to be operating at near 100% of its total capacity. The strong USD may help Portucel to trigger exports. Moreover, the expected high consumption levels in the emerging markets may be a buffer of the prices' volatility since those markets might absorb the excess supply verified in the developed markets.

♦ **Secil – the last acquisition.** Semapa acquired the remaining 49% of Secil on May, 2012, currently owning 100%. The construction sector has not been living its most prosperous days, but Secil has been able to sustain its performance by maintaining its market share in the principal markets and its geographical diversification is the best means of stabilizing its earnings. However, Secil still faces some risks on the countries it operates, such as Tunisia where the government has control over prices and exportations. Secil's presence in Angola is being threatened by the Chinese producers who forced Secil to decrease its operating margins. Significant fluctuations on electricity and fuel costs can have a negative impact on the Secil's business.

Pulp&Paper/Holding

BUY/BUY

September 2012

Portugal

Semapa

Price as at 02-Jul-2012 (€):	4,99
52 Week range (€):	4,7-7,6
No. Shares (mn):	118,3
Market Cap (€mn):	590,5
Price Target (€):	10,25

Source: Bloomberg and own calculations.

Portucel

Price as at 02-Jul-2012 (€):	1,93
52 Week range (€):	1,7-2,3
No. Shares (mn):	767,5
Market Cap (€mn):	1.478
Price Target (€):	2,94

Source: Bloomberg and own calculations.

Portucel vs. Semapa vs. PSI-20
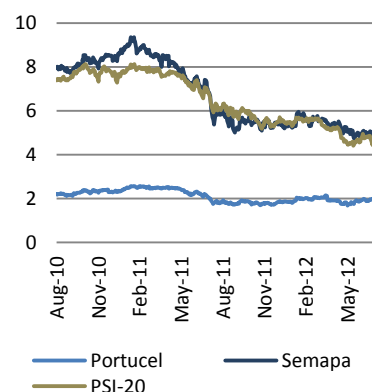
Source: Bloomberg.

Portucel owns the largest and most efficient plants in Europe, all settled in Portugal. It benefits from the vertically integrated production model (forest, pulp and paper) and from a strong portfolio of brands. Its clients are spread over 115 countries, with the markets excluding Europe and America growing considerably.

Different perspectives – Since the investment made in a new paper machine in 2009, the paper UWF has been gaining weight on Portucel's total revenues, which represented 79% last year. In one side, Portucel took advantage from the lower exposure to the volatile BEKP pulp prices, which are expected to vary 33% in the following years. But on the other side, BEKP prices registered an increment of 9,3% in relation to the previous year's average while the UWF paper prices remained almost unaffected.

All in all, the company was able to increase its cash flow generation and the recent capacity shutdowns in the industry are expected to hold Portucel's capacity utilization rates at near 100%.
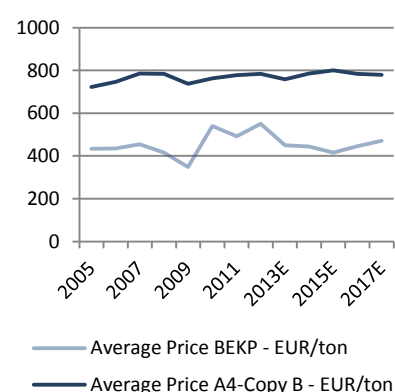
The third party – Starting by being self-sufficient, the renewable energy currently represents around 11% of Portucel's total revenues. However, the energy segment is expected to remain constant on Portucel's portfolio, with the capacity utilization rate at no more than 90%.

2011's Revenue Breakdown (€1488mn)

- Pulp BEKP
- Paper UWF
- Energy and Others
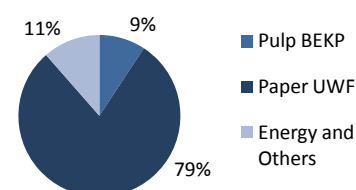
Source: Portucel's Annual Reports.

Expected Pulp and Paper Average Prices

— Average Price BEKP - EUR/ton

— Average Price A4-Copy B - EUR/ton

Source: Portucel's Annual Reports, FOEX and own calculations.

Portucel (mn €)	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
UWF Prices (EUR/ton)	763	778	784	758	786	800	783	779
BEKP Prices (EUR/ton)	540	492	551	451	445	415	445	471
Refinancing needs			226	200	0	150	150	150
Sales	1.385	1.488	1.512	1.456	1.501	1.521	1.508	1.529
EBITDA	**399**	**391**	**429**	**350**	**371**	**365**	**325**	**318**
EBITDA Margin	29%	26%	28%	24%	25%	24%	22%	21%
Depreciations	121	125	124	125	126	128	129	130
EBIT	**278**	**266**	**305**	**225**	**244**	**237**	**196**	**187**
Net Financials	-20	-16	-23	-23	-22	-22	-29	-33
Taxes	-47	-54	-89	-64	-66	-63	-49	-46
Net Income	**211**	**196**	**193**	**138**	**157**	**152**	**118**	**109**
CAPEX	96	54	100	100	100	100	100	100
Changes in WC	68	21	66	-21	10	9	-10	0
Dividends	62	0	119	117	97	110	121	94
FCFF			**181**	**215**	**186**	**183**	**177**	**163**

Source: Portucel's Annual Reports, FOEX and own calculations.

DCF Assumptions	
Re	8,5%
Beta	0,82
Rf	2%
MRP	8,4%
Rd	5,3%
Ku	7,32%
Banktuptcy Cost	30%
Default Prob.	19,5%
D/E	56%
D/V	36%
E/V	64%
T	29,5%
TGR	1,5%

Source: Bloomberg and own calculations.

Both Portucel's EV/EBITDA and P/E multiples are expected to be higher in this year than they were in the previous one, which mirrors Portucel's ability to overcome the global economic crisis. Despite Portucel's good performance, its multiples are below the peer's harmonic average.

|	EV/EBITDA		P/E		P/BV
	T12M	2012E	2011	2012E	2011
PORTUCEL	**4,96**	**5,02**	**7,52**	**7,73**	**0,97**
IP	6,65	5,53	10,81	8,32	1,79
SAPPI	5,56	3,94	10,65	7,68	1,06
HOLMEN	3,29	6,67	13,42	12,54	0,81
EMPRESAS CMPC	10,73	9,85	17,44	16,13	1,11
STORA ENSO	6,71	5,46	10,16	8,67	0,65
SHANDONG		6,13	9,35	8,55	1,52
Harmonic Average	**5,71**	**5,81**	**11,46**	**9,61**	**1,03**

Source: Bloomberg and own calculations.

Secil's turnover is dependent on the level of activity in the building sector in each of the geographic markets where it operates – Portugal, Tunisia, Angola, Lebanon and Cape Verde. The construction sector depends on the level of residential and commercial building, as well as on the level of investments in infrastructures. This sector is highly sensitive to macroeconomic factors, where a downturn in the economic activity may lead to a recession in the building industry.

The crisis' damages – The Portuguese cement consumption is expected to continue to decline in the near future. The excess capacity forced cement producers to decrease their prices and operate in an extremely competitive market. The reutilisation of residuals as energy and raw materials are part of Secil's major concerns. The Angolan government imposed a policy of containment of public spending. Aligning this fact with a cement's consumption decline and competition from Chinese imports, Secil's performance in Angola is expected to slow down.
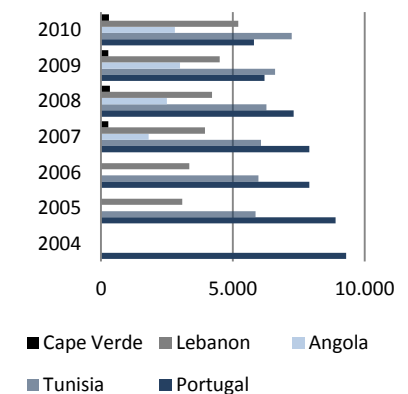
The importance of stability – The Lebanese government has been demanding public works, contributing to an increment of 4% on Secil's sales in 2011 and it is expected to keep increasing. The investment in a new cement mill in Tunisia will allow Secil to register maximum volume sales in the near future.

2011's Revenue Breakdown (€507mn)

- Portugal
- Tunisia
- Angola
- Lebanon
- Others
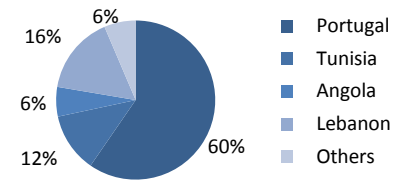
Source: Secil's Annual Reports.

Cement Market Demand ('000 tons)

■ Cape Verde   ■ Lebanon   ■ Angola
■ Tunisia   ■ Portugal

Source: Secil's Annual Reports.

Secil (mn €)	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Sales	535,8	506,9	488,1	493,7	510,0	527,7	548,1	571,3
Portugal	*328,1*	*302,1*	*269,8*	*260,4*	*261,0*	*263,2*	*266,7*	*271,6*
Tunisia	*69,3*	*61,1*	*64,0*	*67,0*	*70,2*	*73,6*	*77,1*	*80,7*
Lebanon	*77,2*	*80,8*	*86,2*	*92,1*	*98,3*	*104,5*	*111,1*	*118,1*
Angola	*27,8*	*30,4*	*35,3*	*40,3*	*45,4*	*50,3*	*55,7*	*61,7*
Others	*33,5*	*32,5*	*32,8*	*33,9*	*35,0*	*36,2*	*37,5*	*39,1*
EBITDA	**114,9**	**65,2**	**91,6**	**88,5**	**86,2**	**83,6**	**80,8**	**77,9**
EBITDA Margin	21%	13%	19%	18%	17%	16%	15%	14%
Depreciations	81,9	85,1	63,3	63,9	65,5	67,0	68,6	70,2
EBIT	**77,9**	**47,2**	**96,3**	**92,6**	**88,7**	**84,5**	**80,1**	**75,7**
Net Financials	-4,9	-6,2	-7,6	-6,6	-5,4	-6,1	-7,1	-8,7
Taxes	-16,6	-10,2	-22,1	-21,4	-20,8	-19,5	-18,2	-16,7
Net Income	**56,5**	**30,8**	**66,5**	**64,5**	**62,5**	**58,9**	**54,8**	**50,3**
CAPEX	44,2	62,2	52,8	52,8	52,8	52,8	52,8	52,8
Changes in WC	4,0	-16,4	-9,1	0,6	1,5	2,2	3,0	3,5
Dividends	37,0	28,8	11,5	30,0	31,8	34,1	35,4	37,0
FCFF			**93,7**	**81,6**	**79,1**	**77,0**	**74,7**	**72,8**

Source: Secil's Annual Reports and own calculations.

DCF Assumptions	
Re	11,4%
Beta	0,94
Rf	2%
MRP	10,6%
Rd	6,3%
Ku	10%
Banktuptcy Cost	30%
Default Prob.	19,5%
D/E	39%
D/V	28%
E/V	72%
T	24,9%
TGR	1,0%

Source: Bloomberg and own calculations.

The forecasted EV/EBITDA and P/E multiples are expected to be lower than Secil's peer group harmonic average in the previous year. This is a reflection of the economic crisis that has been acting globally and affecting the construction sector the most. Secil's relatively good performance is driven by its cost cut policy and diversified operations.

SECIL	EV/EBITDA		P/E	
	T12M	2012E	2011	2012E
CIMPOR	6,35	5,30	11,07	7,89
HOLCIM	8,07	6,68	61,40	12,07
HEIDELBERGCEMENT	6,52	5,96	19,23	9,58
SA DES CIMENTS	6,59	5,52	10,32	7,88
DYCKERHOFF	2,24	2,83	23,76	13,81
CIMENTS FRANCAIS	5,14	4,74	16,30	10,06
LAFARGE	10,56	9,02	18,92	15,66
Harmonic Average	**5,30**	**5,14**	**17,00**	**10,35**

Source: Bloomberg and own calculations.

3

Semapa		No. Shares	02-07-2012	Equity	DCF (mn €)
Portucel	75,85%	745,4	1,93 €	MV	2.188,3
Secil	100%		515,6 mn €	MV	638,5
ETSA	96%			BV	25,8
- Semapa's Holding Debt					1.082,2
+ Semapa's Holding Cash					392,9
- Semapa's Holding Unfunded Pensions					100,1
- Semapa's Holding Cash Flows					377,7
Semapa		112,9	4,99 €	MV	1.157,0
			Semapa's Target Price (€):		10,25
			Recommendation:		**Buy**

Source: Companies' Annual Reports and own calculations.

DCF Assumptions	
Re	8,5%
Beta	0,73
Rf	2%
MRP	6,0%
Rd	6,9%
D/E	183%
D/V	65%
E/V	35%
T	25,9%
WACC	6,3%
TGR	1,4%

Source: Bloomberg and own calculations.

Abstract

This dissertation aims to value the holding Semapa as the sum of the parts of the companies it owns – Portucel, Secil and ETSA. There is still much debate on which model is the best to estimate a company's value, therefore the main methods and theories are firstly discussed in order to use the most appropriate valuation framework and accurate assumptions. By attributing different capital structures' scenarios, this dissertation illustrates two Discounted Cash Flow's approaches, as well as the value dispersion among them: the Adjusted Present Value with and without a target capital structure and the Weighted Average Cost of Capital. In comparison with the current market prices, the three models indicate that Semapa is currently undervalued. The multiples valuation are also performed as a complementary tool. The results obtained are then compared with those of BPI Equity Research and Millennium Investment Banking's reports published in 2012 with the objective of doing a critical assessment on the main sources of differentiation.

Acknowledgements

This dissertation represents a hard working process where I was challenged to apply my knowledgment in Equity Valuation and incur in deep research in order to take final decisions. Fortunately, I was able to rely on people who took important roles thoughout the whole process and to whom I would like to express my gratitude: Professor José Tudela Martins, with whom I discussed the main problems encountered, for his promptitude in replying my e-mails and for the valuable feedback; to Dr. Rui Menezes, Semapa's Investor Relations Department, for the data provided and his kindness in answering my calls; to my colleagues for the constructive discussions, support and helpful feedback; and finally, to all my family and friends who have always stood by my side.

Acknowledgements

Table of Contents

1. Introduction

1.1. Dissertation's Purpose

The present dissertation has the purpose of valuing a listed company. In order to accomplish this goal it will be necessary to discuss the most relevant articles where the lack of consensus rely the most and propose the most suitable models according to the company features. Then, after having reached a consensus, the chosen valuation approaches will be implemented in order to reach a target value and compare it to the current value. In the end, there will be a comparison between the valuation made in this dissertation and an Investment Bank's report valuation, where the main differences are identified.

1.2. The Company

The company chosen is Semapa – Sociedade de Investimento e Gestão, SGPS, S.A. (hereon referred as "Semapa") listed on the PSI-20 Stock Exchange. It currently owns 75,85% of Portucel – Empresa Produtora de Pasta e Papel, S.A. (hereon referred as "Portucel"), 100% of Secil – Companhia Geral de Cal e Cimento, S.A. (hereon referred as "Secil") and 96% of ETSA – Investimentos, SGPS, S.A. (hereon referred as "ETSA").

Portucel is a listed company, also on the PSI-20 Index, and its core business is on the pulp and paper production. Lately, Portucel has been investing heavily on the energy sector and its presence on the renewable energy already represents more than 5% of the total energy produced in Portugal. Since it is a price taker in what regards the pulp and paper products, Portucel has the particularity of being a cyclical company. Although Portucel exports more than 90% of its total revenues, all its subsidiaries are settled in Portugal.

On the other side, Secil is a producer of cement, concrete and aggregates. Besides Portugal, Secil also operates in Tunisia, Lebanon, Angola and Cape Verde. More than 50% of its total volume comes from exportation. The cement industry highly depends on the construction sector, which since 2002 has been suffering from the global crisis and the negative trend is expective to continue in the near future.

The two referred companies – Portucel and Secil – will be valued separately and, at the end, multiplied by the percentage owned by Semapa. Regarding ETSA, since it only contributes with less than 2% to the total revenues of Semapa, ETSA will be accounted for its book value.

1.3. Dissertation's Structure

In order to cover the mentioned purpose, the dissertation will be the following:

a. In section 2, the literature review attempts to gather the main valuation concepts and methodologies in order to choose the approaches that best fits Portucel and Secil's features. It first starts by describing the main Discounted Cash Flow methods and then it goes into detailed considerations where relies a lot of controversy, such as tax shield, terminal value, equity risk premium and other discount factors. It is also described other valuation methodologies such as options, multiples and liquidation and accounting. For being in the presence of a cyclical company, it is also important to analyse what are the main considerations when value such companies.

b. Section 3 is responsible for the application of the methodologies described on the literature review. But before starting, it is important to perceive the industries where both Portucel and Secil are inserted in, so as the macroeconomic factors influencing their operational activity. Then, an overview of each company's value drivers is undertaken by breaking down the historical data. This analysis is of extreme importance as the forecasted periods will contain some influence from past behaviours. When assumptions are required, it is of main priority to find and justify them as rational as possible;

After cover each company's forecasted periods, the valuations of Portucel, Secil and Semapa are performed, as well as the respective price target and recommendation. The chosen method will be the Adjusted Present Value. Although there are several theories on that method, it will be chosen and justified a specific approach and further compared with other APV's approach and the widely used WACC. It is also performed a sensitivity analysis in order to verify the consistency of this dissertation's valuation. To conclude, the DCF valuation will be complemented with the multiples valuation;

c. In section 4, this dissertation's results, methodologies and assumptions are compared with those of the selected research reports. The purpose is to perceive and justify which one followed the best approaches.

d. Section 5 will refer this dissertation's final remarks and possible limitations encountered.

2. Literature Review

2.1. Introduction

There are several models and theories attempting to explain how to best value a company, but there is no right or wrong model, neither consensus regarding the best approach. Equity researchers are constantly working on the new market trends in order to provide analysts with the most suitable and precise models. However, the analysis will always depend on each one's perspective.

The purpose of this chapter is to make reference to the most relevant theories and, according to the demonstrations, sample and conclusive arguments, to choose the models that better reflects the characteristics of the company under valuation.

2.2. Valuation Frameworks

Every analyst aspires to reach the true value. Although, no analyst has the chance to prove whether the value is right or wrong. Instead, the validity of the model can be assessed with the assumptions created. And even the assumptions, when managed consistently, should yield the same value (Young, Sullivan, Nokhasteh and Holt 1999; Koller et al. 2005).

Young et al. (1999) refer that all models should be consistent, comparable, unique in the sense that they all must yield the same value and consistent without uniformity, which allows each analyst to use the model that he defends the most. These four implications should be recognized among all models.

Although one could argue that methods based on cash flows discounting are the only conceptually "correct" models and all the others are conceptually "incorrect" (Fernández 2007c), the four main classes of valuation models in table 1 will be further discussed.

Model	Approach
Discounted Cash Flow	WACC, APV, CCF, EVA, EP, FCFE, DDM
Options	Black-Scholes
Multiples	EV/EBITDA, PER, P/BV
Liquidation and Accounting	Book value

Table 1: Adapted from Damodaran (2005).

2.2.1. Discounted Cash Flow

There are several models where to apply the Discounted Cash Flow (DCF) method and all of them rely on the same goal, forecast the future cash flows in and out of the company and then discount them at a discount rate that properly reflects their riskiness (Luehrman 1997b).

In order to accomplish the company's value, it is possible to either forecast the free cash flow to the firm (FCFF) – cash flow before debt payments and after reinvestment in fixed assets and Working Capital Requirements (WCR) – which, discounted at the cost of capital, outputs the Enterprise Value (whereas Equity is obtain by subtracting all non-equity claims from it), or forecast the free cash flow to equity (FCFE) – cash flow after debt payments and reinvestments needs – discounted at the cost of equity, which yields the Equity value separately.

DCF Model	Measure	Discount Factor	Assessment
Weighted Average Cost of Capital	Free Cash Flow to the Firm (FCFF)	WACC	Companies that manage their capital structure to a target level.
Adjusted Present Value	Free Cash Flow to the Firm (FCFF)	Unlevered Cost of Equity	Highlights changes in capital structure.
Capital Cash Flow	FCFF plus the value of tax shied	Unlevered Cost of Equity	Aggregation of the interest tax shield into the free cash flow.
Economic Value Added	Invested Capital	WACC	Highlights when a company creates value.
Economic Profit	Economic Profit	WACC	Highlights when a company creates value.
Dividend Discount Model	Dividends	Levered Cost of Equity	Represents the tangible cash flow available to stockholders.
Free Cash Flow to Equity	Free Cash Flow to Equity (FCFE)	Levered Cost of Equity	The capital structure is fixed within the cash flows.

Table 2: Adapted from Damodaran (2005) and Koller et al. (2005).

The Free Cash Flow to the Firm (FCFF) is given by the following formula:

[1] $FCFF = After\ tax\ operating\ income - (Capital\ Expenditures - Depreciation) - Working\ Capital\ Requirements$

As it is possible to note, the FCFF is sensitive to Capital Expenditures (CAPEX) and Depreciation, where a reduction in CAPEX relative to Depreciation may cause an increase in the FCFF, mainly when there is no link between the reinvestments rate and growth (Damodaran 2005).

[2][1] Stable Growth Model: $Enterprise\ Value = \dfrac{FCFF_1}{WACC - g_n}$

[3] Two Stages Growth Model: $Enterprise\ Value = \sum_{t=1}^{t=n}\left(\dfrac{FCFF_t}{(1+WACC)^t}\right) + \dfrac{\frac{FCFF_{n+1}}{WACC-g_n}}{(1+WACC)^n}$

The non-operating assets are not included in the free cash flow, but valued separately and summed to the value of the operating assets – Enterprise Value. The non-operating assets are the excess cash and marketable securities, the illiquid investments, the minority interests in

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[1] WACC refers to the Weighted Average Cost of Capital

non-consolidated subsidiaries and assets from discontinued operations that neither generates earnings nor cash flows (Damodaran 2005; Koller et al. 2005).

In order to extract the equity value from the enterprise value, not only the non-operating assets must be incorporated, but also the non-equity claims must be extracted due to its residual claim characteristic. The non-equity claims are all the debt, whereas its book value could be a reasonable proxy (Fernández 2007c; Koller et al. 2005), the unfunded retirement liabilities, all the operating leases (Damodaran 2005; Koller et al. 2005), the minority interests, the preferred stock and the employee stock options, which automatically represents an obligation to the company (Koller et al. 2005).

When the convertible debt and the employee stock options are considered non-equity claims, the share price must be obtained by dividing the equity for the basic number of shares outstanding. Instead, if the convertible debt and the employee stock options are not subtracted to the enterprise value, the diluted shares should be the denominator of the share price calculation (Koller et al. 2005).

2.2.1.1. Weighted Average Cost of Capital

The Weighted Average Cost of Capital (WACC) is the weighted average of the after tax costs of the different sources of capital, debt and equity, weighted by the respective percentage of debt and equity of the company. Along with these lines, WACC is an adjusted discount rate enhanced to reflect all investors' risk, including the bankruptcy costs, which will further be used to discount the computed free cash flows available to all investors to their present value (Damodaran 2005; Koller et al. 2005; Luehrman 1997b).

Computing a valuation with the WACC is not as straightforward as it may seem. According to its formula, its value clearly depends on the capital structure. Therefore, when the capital structure is constantly changing, it is advised to use the APV approach (Koller et al. 2005; Luehrman 1997b). Although WACC might be adjusted for capital structure changes, proceeding with those adjustments is denying the APV application. The capital structure's weight is easily managed but, the cost of equity does not increase properly (Koller et al. 2005).

[4] $WACC = k_e * \frac{E}{V} + k_d * (1 - T) * \frac{D}{V}$

2.2.1.2. Adjusted Present Value

The Adjusted Present Value (APV) is given by the sum of the base-case value (present value of the project's operating and investment cash flows considering that the company was all-equity financed) plus the sum of the present value of all financing sides, such as interest tax shields and bankruptcy costs (Damodaran 2005; Luehrman 1997b).

The APV's approach is mandatory when the company to be valued does not rely on a target debt-to-value ratio (Koller et al. 2005; Luehrman 1997a, 1997b). The base-case value is discounted at the company's unlevered cost of equity (Ku) and each financial side is discounted at a proper discount rate that best reflects the risk. Thus, a change in the capital structure would neither affect the company's enterprise value nor the cost of capital (Luehrman 1997b).

$$[5] \quad Enterprise\ Value = \sum_{t=1} \frac{FCFF_t}{(1+k_u)^t} + PV_{VTS} + Bankruptcy\ Costs$$

To estimate the bankruptcy costs, Damodaran (2005) advices one of two options, or a probability of default is attributed to each bond rating, according to the level of debt, or a simple probability is assumed depending on the company's debt level. Studies demonstrate that bankruptcy costs are usually assumed to be 30% of the firm value and the probability of bankruptcy can be accessed through a study performed by Altman and Karlin (2010) who compiles rated corporate bonds from 1971 to 2009 where it is possible to access the default probability according to each company's bond rating (please refer to Appendix 1 for the probabilities of bankruptcy's estimates).

2.2.1.3. WACC vs. APV

Both WACC and APV were drawn to value any assets that generate future cash flows, however, the discussion of which approach performs the best is still under question. WACC's approach is widely spread and recognized among the valuation's specialists community, being accepted as the standard approach over the past decades. On the other hand, APV's approach appears to be complex and time consuming, but nowadays it can be easily computed thus, the simplicity advantage of WACC is no longer valid and it might had become obsolete (Luehrman 1997b).

WACC's validity faces serious setbacks when the company is constantly changing its capital structure (Koller et al. 2005; Luehrman 1997a, 1997b). The WACC is affected by the capital structure not only through the input itself, but also through the cost of debt and equity inputs, which are dependent on the capital structure. Therefore, the entire WACC's formula is affected every time the capital structure changes (Luehrman 1997b). However, if managers aim a constant leverage ratio, WACC is the appropriate approach (Luehrman 1997a).

Furthermore, WACC's approach starts with an assumption that might undertake the whole valuation. The purpose is to estimate the Enterprise Value in order to subtract the Debt and reach an Equity value. However, Debt and Equity must be known in order to compute the mentioned WACC (Fernández 2007a). The market values of debt and equity must be used, but once unknown, the book values' assumption must be applied (Luehrman 1997b). Koller et al.

(2005) argue that target ratios must be used rather than current weights, because it may be just representative of the short-term event and mismatches may arise.

Empirical evidence illustrates how APV has the ability to provide managerial insights regarding how much is an asset worth and where the value comes from. Contrarily to WACC, which bundles all financing sides into a discount rate, APV separates and analyzes each financial side separately and then sum all the components (Luehrman 1997a, 1997b). But by doing this, APV might disregard some costs by unbundling all financial sides (Luehrman 1997b).

2.2.1.4. Capital Cash Flow

The capital cash flow is the aggregation of the free cash flows and the interest tax shield into one numerator. This approach defends that when a company is continuously managing its capital structure to a constant ratio, both free cash flow and interest tax shield should be discounted at the same rate, the unlevered cost of capital (Fernández 2004; Koller et al. 2005).

Nevertheless, bankruptcy costs are ignored (Damodaran 2005) and interest tax shield are accounted in the free cash flow, allowing both WACC and APV to provide better performance evaluations (Koller et al. 2005). Plus, in this model, interest tax shield are perceived less risky leading to higher values when compared with both WACC and APV (Damodaran 2005).

2.2.1.5. Economic Value Added

The Economic Value Added (EVA) is the surplus of the value created, given by the difference between the after-tax operating income (adjusted for operating leases, R&D and one-time events) minus WACC (at market values) times the book value of debt and equity of the previous period (Damodaran 2005; Fernández 2007a). Linking EVA with the Enterprise Value (EV), the following formula is derived (Damodaran 2005):

$$[6] \quad EV = Invested\ Capital_{assets\ in\ place} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,assets\ in\ place}}{(1+WACC)^t} + \sum_{t=1}^{t=\infty} \frac{EVA_{t,future\ projects}}{(1+WACC)^t}$$

2.2.1.6. Economic Profit

The economic profit transmits the relation between ROIC and WACC multiplied by the invested capital from the previous year. A company might be generating positive net income, but it may not be earning its cost of capital hence, the company is destroying value. Although the DCF's broad acceptance, it lacks explanations regarding whether the company is performing poorly or the free cash flows' drop was due to realized investments. Koller et al. (2005) present the following equation on the next page:

$$[7] \quad Economic\ Profit_0 = Invested\ Capital_0 + \sum_{t=1}^{\infty} \frac{Invested\ Capital_{t-1}(ROIC_t - WACC)}{(1+WACC)^t}$$

2.2.1.7. Dividend Discount Model

The Dividend Discount Model (DDM) yields the per share stock price by forecasting the dividends distributed, depending on the earnings' growth and payout ratio, further discounted at the cost of equity. There are also extensions to this model according to the growth perspectives (Damodaran 2005):

[8] Stable Growth model: $P_0 = \dfrac{E(DPS)}{k_e - Expected\ Growth\ in\ Perpetuity}$

[9] Two Stages Growth model: $P_0 = \sum_{t=1}^{t=n} \left(\dfrac{E(DPS_t)}{(1+k_e)^t} \right) + \dfrac{\frac{E(DPS_{n+1})}{(k_e - Expected\ Growth\ in\ Perpetuity)}}{(1+k_e)^n}$

Although some argue that the DDM is too linear when compared with the FCFF and FCFE, others believe it represents the tangible cash flow available to investors. Plus, other models require more assumptions, thus are more volatiles, to reach the same value as the DDM.

On the other hand, the simplicity of this model faces some setbacks. Larrain and Yogo (2007) found that cash flows including dividends, interest payments and net repurchases of equity and debt are more correlated with stock prices than dividends alone. Also, it completely ignores the fact that Equity is a residual claim and it might undervalue the company if the company decides to retain more earnings (increase cash balances) than distribute dividends, which increases the gap between dividends paid and potential dividends (Damodaran 2005).

2.2.1.8. Free Cash Flow to Equity

One way to mitigate the gap between dividends paid and potential dividends is to compute the potential dividends. The FCFE is an alternative method of the DDM, which is assumed to be the cash available to all stockholders (Damodaran 2005).

[10] $FCFE = Net\ income + Depreciation - Capital\ expenditures$
$- Change\ in\ non\ cash\ Working\ Capital - (New\ debt\ issued - Debt\ repayments)$

[11] $P_0 = \dfrac{E(FCFE)_1}{k_e - stable\ Growth\ rate}$

2.2.1.9. Important considerations

Damodaran (2005) presents both Enterprise Value and Equity Valuation as alternative methods, arguing that in both models the equity value must be the same if there is consistency on the assumptions created. Fernández (2007c) and Young et al. (1999) are even more precise when argue that it is a mistake to consider that different DCF models yield different values.

However, among the reasons that may lead those values to deviate from each other is Fernandez (2007a) arguing that the difference relies solely in the value of the tax shield. Damodaran (2005) also agrees upon the WACC's calculation at market values, in case the

company is not fairly priced. Moreover, Damodaran (2005) and Young et al. (1999) require that special attention must be given to the terminal value since it is the most important element in any valuation, but the gap often found between the time spent on its assumptions' creation and its weight on the valuation leads to great dispersion.

Koller et al. (2005) are more selective and claim that the equity is a residual claim and it is only considered after no payments are left so, a separated calculation of debt and equity may need more assumptions and thus, lead to more mismatches.

The EVA and Economic Profit models should also provide the same value as an equity DCF valuation when assumptions regarding growth and reinvestment are consistent. Though, there are empirical studies demonstrating that both models outperform the DDM.

In conclusion, "most approaches are different expressions of the same underlying"[2] model. Nonetheless, both APV and WACC might be considered in a FCFF's computation. The Equity models will not be computed on this dissertation due to their residual claim characteristic. Plus, Young et al. (1999) argue that as more approaches are computed, the weaker is the message.

Meanwhile, the tax shield, the terminal value and the variables of the cost of capital to compute the WACC, as sources of differentiation among models, will be discussed next.

2.2.1.9.1. Tax Shield

The value of tax shields (VTS) is the saved money obtained from the payment of interests incurred by debt issue, which represent an addition in the company's value (Koller et al. 2005; Fernández 2004). There are several discussions regarding the tax shield's value calculation, mainly regarding the right discount rate to apply and which leverage ratio to use.

Fernández (2004, 2007a) is the most contradictory when he argues that the value of tax shield is not simply given by the present value of tax shields, but by the difference between the present value of taxes for the unlevered company and the present value of taxes for levered companies, in perpetuity. Under the assumption that the market value of debt is equal to its nominal value and there are no leverage costs, Fernández (2007a) presents ten valuation methods which, for relying on the same assumptions, always lead to the same value. Then, Fernández (2007a) claims nine theories on the value of the tax shield, concluding that the main source of differentiation among valuation methods is precisely the value of the tax shield, due to differences on the levered and unlevered cost of equity and betas and thus, on the WACC.

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[2] Young et al. (1999).

Fernández (2004, 2007a) stands for the following formulas if the market value of debt equals its book value:

[12][3] $k_e = k_u + \frac{D*(1-T)}{E} * (k_u - k_d)$

[13][4] $\beta_L = \beta_u + \frac{D*(1-T)}{E} * (\beta_u - \beta_d)$

[14] $VTS_{growing\ perpetuity} = \frac{D*T*k_u}{k_u-g}$

On the other hand, if the market value of debt (D) does not equal its book value (N), then Fernández (2004) suggests the following equation:

[15][5] $VTS_{growing\ perpetuity} = \frac{D*T*k_u + T*(N-D*k_d)}{k_u-g}$

According to Fernández (2004, 2007a), there is a consensus regarding the value of tax shield, for perpetuity with no growth and no leverage costs, equalling debt times taxes [16]. The main difference among authors is the approach they consider to reach this value, but all of them rely on a fixed amount of debt. Modigliani and Miller (1958, 1963) argue that the discount rate should be the risk free. Indeed, Myers (1974), who introduced the APV's approach, Luerhman (1997), Koller et al. (2005) and Damodaran (2005) assume the discount factor is the cost of debt since the tax shield's risk arises from the use of debt therefore, the same risk is assumed (Fernández 2004, 2007a). Fernández (2004) also agrees upon the convention of equation [16] for perpetuity with no growth.

[16] $VTS_{no\ growth} = D * T$

Although, regarding the VTS for growing perpetuities, Fernández (2007a) presents demonstrations where the value of tax shield discounted at the cost of debt or at the risk free rate results in a lower cost of equity to levered companies than to unlevered companies.

Harris and Pringle (1985) however, propose the interest taxes shield are given by debt times tax rate times cost of debt, discounted at the unlevered cost of equity, reasoning the interest tax shield face the same systematic risk as cash flows. This argument is also defended by Ruback (2002) when presenting the Capital Cash Flow approach. Nevertheless, inconsistency was found from constant to growing perpetuities on this approach presenting values of tax shield too low (Fernández 2007a).

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[3] Ke refers to the cost of equity, ku refers to the unlevered cost of assets, D and E to the Debt and Equity respectively under the assumption that the market value of debt equals its book value, kd refers to the cost of debt and T is the corporate income tax.
[4] Bu is the unlevered beta, βe is the levered beta and βd is the beta of debt.
[5] N refers to the book value of debt.

There are reasons to believe that tax shield should be discounted according to the company's debt-to-value goals. Miles and Ezzel (1980) argue that for a company that manages its capital structure to a constant leverage ratio, tax shield should be discounted at the cost of debt in the first year and, on the following years they should be discounted at the unlevered cost of equity, once it will vary according to the expected cash flow. Approving this approach are Lewellen and Emery (1986), Inselbag and Kaufold (1997) and Ruback (2002), while Taggart (1991) adds that the company must be adjusted to its ratio once a year and Harris and Pringle (1985) claim those adjustments should be done constantly. Cooper and Nyborg (2006) concluded from Miles and Ezzel (1980) the main equations:

[17] $\quad k_e = k_u + \frac{D}{E} * (k_u - k_d)$

[18] $\quad \beta_u = \beta_e * \frac{E}{D+E}$

[19] $\quad VTS_{growing\ perpetuity} = \frac{D*T*k_d}{k_u}$

Cooper and Nyborg (2006) argue against Fernández's (2004) approach, claiming he attempted to mix Modigliani and Miller (M&M) and Miles and Ezzel's (M&E) leverage theories, but failed. Contrarily to M&E who defend that debt should be constantly rebalanced, M&M do not. Thus, when Fernández (2004) assumes expected unlevered cash flows to grow with M&M financing strategy of a fixed amount of debt, but manages the debt to value ratio according to M&E to a constant level, independent of grow and time, Fernández (2004) is mixing inconsistent assumptions (Arzac and Glosten 2005; Cooper and Nyborg 2006). Moreover, Cooper and Nyborg (2006), when reconciling Fernández's (2004) assumptions, prove that neither the unlevered and levered cost of capital, nor the cost of debt are independent of growth, as Fernández (2004) implies.

Subsequent to Cooper and Nyborg (2006), Fernández (2007b) defends his adjustments to M&M and M&E's capital structure approach for growing companies. As two extremes, M&M and M&E are not applicable to all companies, whereas M&M is tailored for companies with a preset amount of debt and, on the other hand, M&E is used when debt depends on the market value of equity. Fernández (2007b) merged both approaches and developed the fixed book-value leverage ratio (i.e. define the debt level as a percentage of the book value of equity), arguing that book values produce a more realistic valuation rather than market values. The reasons behind it are that credit ratings rely more on book values and managers, perceiving this, actually target the capital structure at book values. Also, the risk of tax shield by debt increases is lower and the debt book value does not depend on the stock market's movements

thus, it is easier to compare and follow non quoted companies. Empirical evidence also led Fernández (2007b) to conclude that debt presents higher correlation with the book value of assets than with its market value.

Fernández (2004, 2007a, 2007b) presents a singular tax shields' approach from what has been published so far, he stands under strong premises as demonstrations among the main nine theories for the value of tax shield, managing all the theories previously published and also relates them with the ten proposed models to prove all his statements. However, this model did not receive enough attention and it is an outlier of what have been studied so far. Contrarily, Cooper and Nyborg's (2006) approach appears to be too restrictive for quoted companies with a preset debt to value ratios which, in the current worldwide financial crisis, companies might face restrictions to debt access.

At the end, the value of the tax shields depends on how the company manages its capital structure. Relying on a target debt-to-value ratio is believing that the company's debt will grow with the business and thus, the risk of tax shields will equal the risk of the operating assets – unlevered cost of equity. Believing on the opposite is assuming that the risk of tax shields is better tied with the cost of debt (Koller et al. 2005).

2.2.1.9.2. Terminal Value

The terminal value "accounts for 56 percent to 125 percent of the total value"[6] yielded from a valuation. Therefore, there are some important considerations regarding the assumptions made. It represents the company's steady state, meaning the company will grow at a constant rate and will reinvest a constant proportion of its operating profits, leading to a constant ROIC in the long-term. Before proceeding with the terminal value, the length of the forecasted period is advised to be between 5 to 7-years (Koller et al. 2005).

$$[20] \quad Terminal\ Value\ (TV) = \frac{CF_n * (1+g)}{(k-g)}$$

In steady state, the growth rate cannot exceed the riskless rate assumed in the valuation neither the expected growth rate of the economy where it operates. If none of the referred assumptions is considered, the steady sate premise is not valid (Damodaran 2005). As reference, Damodaran (2005) considers the growth rate equals the reinvestment rate times the return on capital (see equations 21 and 22).

$$[21] \quad Reinvestment\ Rate = \frac{CAPEX - Depreciation + Investment\ in\ Working\ Capital}{EBIT * (1-T)}$$

$$[22] \quad Return\ on\ Capital\ (ROC) = \frac{EBIT * (1-T)}{Capital\ Invested}$$

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[6] Koller et al., 2005

2.2.1.9.3. Risk Free Rate

The risk free rate is a building block to estimate the cost of equity and capital whereas an increase in the risk free rate, will further represent a decrease in the present value on a DCF's valuation. The risk free rate is based on the government bonds for being a default free zero coupon rate and better controls the currency (Damodaran 2008; Koller et al. 2005). Plus, the risk free chosen must be consistent throughout the whole valuation (Damodaran 2012).

In order to better handle inflation, the cash flows and the discount rate – as well as its components – should be performed in the same currency (Damodaran 2008; Koller et al. 2005). Moreover, if a country presents high or even unstable inflation, the valuation should be performed in real rates otherwise, nominal rates are used (Damodaran 2008).

It is a mistake to compute the historical average of the risk free rate (Fernández 2007c). Instead, a single rate should be used and its length should match the stream of cash flows to be valued – the 10-year treasury bonds (Damodaran 2008). Longer-dated bonds might compromise the valuation due to its illiquidity (Koller et al. 2005).

In top of all, Damodaran (2008) also states that within the Euro currency, the risk free rate should be the lowest 10-year government bond rate, which is issued by the German government. One could argue that the risk free rate should be from the country where the company is addressed. However, the Portuguese rating is nowadays considered "junk" by the main rating institutions (Appendix 2), therefore it should not be considered risk free.

2.2.1.9.4. Market Risk Premium

The Market Risk Premium (MRP) is the other building block to estimate the cost of equity and capital, given by the difference between the market return and the risk free rate. It is the premium demanded by investors for the average market risk in order to further discount the cash flows at an average risk. There are three possible approaches – survey to investors, managers and academics, historical and forward-looking estimates (Damodaran 2012).

Both Damodaran (2012) and Fernández et al. (2011) provide the results of a survey to investors, managers and academics. Damodaran (2012) defends that investors are the ones who demand the MRP although, some analysts are unwilling to use this method. The major reason behind it is the dependency on the sample that might not be a good reflection of the market. Fernández et al. (2011) also present the average MRP among 56 countries.

The historical approach is the most popular worldwide. The geometric average seems more trustable, since it has been argued that the arithmetic average overestimates the MRP. Damodaran (2012) presents the standard errors of the MRP and it decreases as the period gets

longer therefore, the lengthiest horizon should be used. However, the Portuguese index lacks data since it just started on December of 1992. On the other hand, a broadest index is pointed, as the MSCI Europe Index[7].

2.2.1.9.4.1. Country Risk Premium

The emerging markets have the particularity of being riskier than the developed markets and those are mainly invoked due to higher inflations, political changes, war, volatility and others. Therefore, each country extra risk must be taken into account and it can be added to the DCF's numerator by building a probability-weighted cash flows' scenario, where the risk is incorporated into the cash flows by conferring different scenarios to each country, or to the DCF's denominator by adding the country risk premium to the company's cost of capital (Goedhart and Haden 2003; James and Koller 2000).

Damodaran (2012) claims the additional risk premium depends on whether the country has diversifiable or non-diversifiable risk. According to Goedhart and Haden's (2003) perspective, emerging and developed markets share similar risks when it regards to a portfolio of investments due to the low correlation linking each country risk hence, emerging markets' risk is considered diversifiable. However, Fernández (2007c) argues that this is one of the most common errors in valuation and Damodaran (2012) also refers that the correlation across markets has risen thus, emerging markets' risk is non-diversifiable.

Assuming the risk is diversifiable, James and Koller (2000) argue against the country risk premium's approach because it is a mistake to consider the company's risk as a proxy of the country's credit risk. And, although it regards the same country, companies' operations are different within and across different industries.

On the other hand, Damodaran (2012) contradicts this theory by the simple fact that risk averse investors will always demand a higher risk premium for investing in emerging markets. To prove that, both Donadelli and Prosperi (2011) and Fernández (2011) concluded, from historical data and surveys, that the MRP is higher in emerging markets (Damodaran 2012).

All MRP's models proposed by Damodaran (2012) in what regards the emerging markets rely on the historical approach. It can be written as the sum of the MRP of a mature market and the country risk premium. A reliable alternative for the S&P500 used by Damodaran (2012) could be the German Index – DAX Index. Damodaran (2012) presents three models, but there

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[7] The MSCI is composed by the following 16 developed market country indices: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom (source: MSCI).

are some constraints preventing the applicability of all of them. As a result, instead of discussing all models, it is better to refer the approach that gathers the data needed for the group of countries relevant for this dissertation – Tunisia, Lebanon, Angola and Cape Verde.

The mentioned approach assumes that the default spread is a reasonable proxy of the country risk premium. Therefore, through each country rating proposed by Moody's and S&P's, it is possible to obtain an adjusted default spread which, divided by ten thousand and multiplied by one and a half, will yield the country risk premium (see Appendix 2). In order to be consistent, the Portuguese MRP will also be computed according to this method.

2.2.1.9.5. Equity's Levered Beta and Cost of Equity

The cost of equity is the return that investors demand to invest in the company's equity. Therefore, it is needed to convert the risk into expected returns and the Capital Asset Pricing Model (CAPM) is the most widely accepted model to do it (Damodaran 2001; Koller et al. 2005). According to CAPM, the cost of equity is given by the following expression:

[23] $\quad k_e = R_F + \beta_L * [E(R_M) - R_F]$

Whereas the risk free rate and the MRP are common across companies (as discussed above), beta is not (Koller et al. 2005). Rosenberg and Rudd (1982) even claim that the main obstacle in using the CAPM is the difficulty in finding reasonable betas' predictions when it regards to a non-traded asset, which is the Secil's case.

In order to compute the raw beta, the company stock's return must be regressed with a value-weighted and diversified market's return, where its slope is the aimed beta. The slope is also achievable through the following formula (Alpalhão and Alves, 2005):

[24] $\quad \beta = \frac{cov\,(r_i, r_m)}{\sigma_m^2} = \rho_{i,m} \frac{\sigma_i}{\sigma_m}$

If beta is greater than one, it means the company is riskier than the market, and the reverse is also true. The returns used to compute the betas' regression are advised for Koller et al. (2005) to be no less than 60-month – monthly returns.

Regarding the market portfolio, Leite, Cortez and Armada (2009) demonstrate how European indexes underperform the Portuguese market. Notwithstanding, Koller et al. (2005) argue not to use the local market index because some indices are composed by few industries and companies, which is the PSI-20 index case. Instead, it is pointed the MSCI Europe Index.

Bloomberg calculates the beta by multiplying the beta obtained from the regression by two thirds and then sum one third of one. The argument behind it is the fact that the beta, according to CAPM, should equal one.

As a final note, the unlevered beta, necessary to compute the unlevered cost of equity in an APV approach, depends mainly on the capital structure and can be computed through the levered beta as follows (Damodaran 2001):

$$[25] \quad \beta_{\text{levered}} = \beta_{\text{unlevered}} * \left(1 + (1 - T) * \frac{\text{Debt}}{\text{Equity}}\right)$$

2.2.1.9.6. Pre Tax Cost of Debt

The cost of debt should reflect the default risk of the company (Damodaran 2001). The most common approach is to assume that the pre tax cost of debt equals the yield to maturity (YTM) of the company's long-term bonds. However, YTM is just a proxy of the expected debt's return, because the YTM refers to the promised return of debt when the aim is to value expected cash flows and not the promised. This inconsistency is meaningless for companies with debt rated at BBB (S&P) or above, otherwise the YTM will deviate considerably from the cost of debt and thus, CAPM should be applied (Koller et al. 2005; Oded and Michel 2009).

When the YTM is considered a reasonable proxy of the expected debt's return, the pre tax cost of debt is addressed by the sum of the default spread based on the company's debt rating with the risk free rate, both with the same 10-years maturity (Damodaran 2001, 2009; Koller et al. 2005; Oded and Michel 2009).

2.2.2. Options

The options method is an extremely valuable framework, mainly when there are high levels of uncertainty surrounding the company's operations, either for investment's decisions or dependency on traded commodities. The main advantage of the options valuation is that it takes into consideration all the scenarios available to the company, by allowing decision-making over time, whether the investment process had been approved or not (Koopeland and Keenan 1998). The most widely used model to value options is the Black-Scholes Model.

The options framework is most appropriate for commodities that do not deteriorate over time, are well preserved under the earth and exist in finite quantities hence, there is the option to explore it faster or slower, according with the company's needs. None of the above characteristics are applicable for both Portucel and Secil's raw materials, respectively in the paper and cement industries. Plus, both cement and paper's raw materials are commodities not frequently traded therefore, there are some variables hard to obtain such as the volatility.

2.2.3. Multiples

The accuracy of any valuation model highly depends on the assumptions the forecast relies on and the multiples valuation is not an exception (Goedhart, Koller, and Wessels 2005). Since the

multiples valuation provides the enterprise or equity value of a determined company through the multiplication between the peer group's multiple average and the company's value driver, the importance of the peer group's choice is perceived as extremely important.

The peer group's selection depends on two main factors. First, it is necessary to decide if the group will be composed by companies of the same industry or across industries. Although the peer group's sample reduces by selecting companies from a single industry and, therefore, create a less precise estimation (Liu, Nissim, and Thomas 2002), the peer group should be composed by only one industry (Goedhart et al. 2005; Liu et al. 2002). Supporting this argument are studies where the error distribution is more dispersed in all multiples when the peer group is composed by firms across industries and its frequency of errors decreases when comparable companies are selected from the same industry. In fact, firms from the same industry confer more homogeneity in terms of what is its core business (Liu et al. 2002).

Also, the target firm should not be included into the peer group's average, neither should a company which holds a considerable percentage of the target firm. It would bias the average by double counting and the dispersion of errors would increase (Liu et al. 2002). On top of all, the peer group's average should be calculated through the harmonic mean, as it performs better than a simple mean or median (Goedhart et al. 2005; Liu et al. 2002).

Secondly, each multiple has its main drivers and those are the ones which must be comparable within the selected group in order to find the final peer group. Since the goal of each company is to grow and create value by making sure that its ROIC is above its WACC (Koller et al. 2005), both growth and ROIC collect the main factors to reflect different strategic advantages from company to company within the same industry (Goedhart et al. 2005). The capital structure can also be very characteristic from each company and therefore, an important factor to find similarities among companies (Goedhart et al. 2005).

Indeed, the company's value drivers used to perform the valuation can be several and some perform better valuations than others. First of all, there is great consensus that forward-looking multiples provide the most accurate valuation and it improves if the forecast horizon increases. If the forward multiple cannot be estimated, it should be followed by the historical multiple (Goedhart et al. 2005; Liu et al. 2002), with a particularly that the most recent data must be used and one-time events eliminated (Goedhart et al. 2005).

Contrarily to Liu et al. (2002), who state in their relative performance list that earnings is the best value driver for providing the lowest pricing error (difference between the current and the predicted stock price), Goedhart et al. (2005) argue that earnings include many non-

operating items and the PER multiple would change if the capital structure changes. So, according to Goedhart et al. (2005), EBITA (earnings before interest, tax and amortization) to Enterprise Value is less susceptible to capital structure's manipulation by including both Equity and Debt and it can be easily adjusted for excess cash and non-operating items, operating leases, employee stock options and pensions.

Although Goedhart et al. (2005) do not make any reference to EBITDA (earnings before interest, tax, depreciation and amortization), both Fernández (2001) and Liu et al. (2002) agree upon some limitations on this value driver such as the fact that it does not include changes in working capital requirements and it does not consider capital investments.

Referring back to Liu et al.'s (2002) relative performance list, historical book value place the third position and it is followed by the historical cash flows, with the EBITDA performing better than the cash flow from operations.

However, it is also important to be aware of the limitations of Liu et al.'s (2002) sample. It excludes all the firms with share prices below US$2 so, taking into consideration that Secil is not even traded and Portucel has been around €2, their conclusions might apply for Portucel, but not for Secil. Also, Liu et al.'s (2002) sample is constituted by companies traded on the NYSE and Nasdaq, contrarily to Fernández's (2001) sample which is constituted by European companies thus, his conclusions might fit better in these two Portuguese companies.

The multiples valuation is likely to be seen as a secondary tool of valuation. After performing other valuation frameworks, multiples can be useful in making other valuation methods more accurate. By comparing the peer group's multiples, it is possible to identify differences between the firm and its comparables (Fernández 2001; Goedhart et al. 2005), run stress-tests in the DCF valuations and discuss the value creation according to its strategic position (Goedhart et al. 2005). It is also valuable as a complementary tool on helping to perform the Terminal Value on a DCF analysis.

Fernández (2001) figures the most widely used calculation methods of *Morgan Stanley Dean Witter Research*'s analysts to value European companies and, against all odds, DCF method ranks in fifth place, after Price Earnings Ratio (PER) and Enterprise Value to EBITDA multiples, ranked in first and second place respectively. This rank provided by Morgan Stanley, with given proofs of its quality and spread all over the world, questions the relevance of both multiples when it comes to valuing companies. Moreover, Damodaran (2009) defends that EBITDA multiples are easily computed for every cyclical company and EBITDA becomes less volatile.

Although the disagreement between Liu et al. (2002), whose studies outputted that there are no specific multiples among industries, Fernández (2001) attributes to some industries a multiple that better reflects its business nature. Price to Book Value (P/BV) is referred to the paper and pulp industry and Price to Output is referred to the cement industry.

2.2.4. Liquidation and Accounting

When a subsidiary represents a small contribution to the parent, the difference between the value of a company in book-values rather than market values is almost immaterial. The accounting model refers to valuing a company at its book-value. One could argue that this model presents a good proxy of the company's market value rather than the assumptions created in forecasting the future. Damodaran (2005) agrees upon this method if the firm to be valued is mature, mainly composed by fixed assets and with no growth opportunities. Moreover, the book value of the assets is becoming a better proxy of its market value as most of the assets are accounted at the fair value.

2.3. Cyclical Companies

Cyclical companies are characterized for facing significant earnings' swings driven by economic forces, often considered price-takers. But because a negative trend does not mean that the company will decline forever, cyclical companies are valued differently. Plus, long periods of forecast should not be computed, it will decrease the valuation's quality (Damodaran 2009).

Instead of assuming long-term perspectives, earnings, growth and cash flow should be normalized, representing the mid-point of the cycle. But it is also possible to forecast the short-term macroeconomic impact and just normalize the long-term. Damodaran (2009) presents three normalization's approaches. The first is to do an average over five to ten-years (enough to cover a cycle) if revenues do not double each year; the second is to average the relative measures, such as profit margins and book-capital ratios, and then obtain the absolute value; the last is apt for companies with short periods of history thus, the average should be performed on the relative values of the sector, if there is similarity among them.

On the other hand, Koller et al. (2005) defend the scenarios approach. One scenario is the normalization of the most relevant factors – operating profits, cash flow and ROIC – in long-term for the continuing value and there should be a second scenario representing the new trend based on the recent performance of the company. This approach is similar to Damodaran (2009), but instead it assumes probability weights – more determinants.

3. Companies' Valuation

Fernández (2007c) clears the differentiation between the value and the price of a company. The main goal of this section is to purpose a value to the company according to the models previously discussed in section 2. Because in the valuation all models are valued under the same assumptions, they should yield the same value and it is worthless to compute all the referred approaches.

In this section, however, the valuation will be computed considering the company as a whole. There is no specific interest in just one asset, technology or market penetration. Economies of scale, scope or other synergy effects were neither taken into account. Thus, different scenarios are acceptable and each entity is allowed to purpose a different valuation according to its own interests by giving a price to the company (Fernández 2007c).

There are several reasons leading one to value a company, but in this dissertation it will only be possible to compare the share price on the stock market. Therefore, it will be feasible to perceive if the company is over or undervalued and then, decide to hold, sell or buy.

As previously referred, Semapa is a holding company which has been acquiring small portions of Portucel, currently owning 75,85% of Portucel, 100% of Secil and 96% of ETSA. In order to evaluate Semapa, an independent valuation of each company must be computed. ETSA represented less than 2% of its total revenues in 2011 hence, its book value will be considered.

There are several steps to go through before reaching a value for each company. First, it is important to understand the industries where the companies are inserted in – pulp and paper (Portucel) and cement (Secil). Then, after a companies' overview, the valuation itself starts to be computed. In this sub-section, the revenues and operating costs of each company are detailed. Then, and because the calculation for both companies is similar, Other Valuation Issues refers to the net working capital, the capital expenditures and depreciation, the capital structure, the net income's application and minority interets and the necessary variables to discount the forecasted periods into the present value. Finally, the DCF and the multiples valuations will be undertaken, as well as the price target, recommendations and sensitivity analysis.

3.1. Industry Overview

Before proceeding with the valuation itself, it is mandatory to understand the industries and the markets where the companies operate as well as the macroeconomic factors that the companies are subject to. This analysis will assist the forecasted periods' computation.

There is some information available for both industries, but it is mostly European. For both companies which operate all over the world, the lack of data clearly represents a constraint. Nonetheless, they both consider Europe as their principal market representing over 50% of their revenues, thus the European data will be used as a proxy to the whole industry when there is no other information available.

3.1.1. Portucel

Portucel's core business stands on the production of paper – Uncoated Woodfree (UWF) – and pulp – Bleached Eucalyptus Kraft Pulp (BEKP). The renewable energy has been gaining weight into the Portucel's total revenues, representing more than 10% of the total revenues. All Portucel's productive units are settled in Portugal.

Portucel is the world leader in the production of premium office paper (Navigator). The pulp is almost all oriented to the European market, including Portucel's paper production. Also, Portucel is the third largest exporter in Portugal, accounting for more than 3% of all exports to more than a hundred countries in the five continents (refer to Appendix 3 for further details of Portucel's competitiveness and risks).

3.1.1.1. Pulp Industry

According with the figure 1 (below), it is possible to observe a relation between the pulp consumption in the Utipulp countries[8] and the real GDP growth rate in the Euro-27. In fact, it can be noticed that the pulp consumption can be more volatile than the real GDP growth rate and they do not always follow the same trend and when they do, apparently, the pulp consumption decreases always preceding one year the GDP growth decrease.
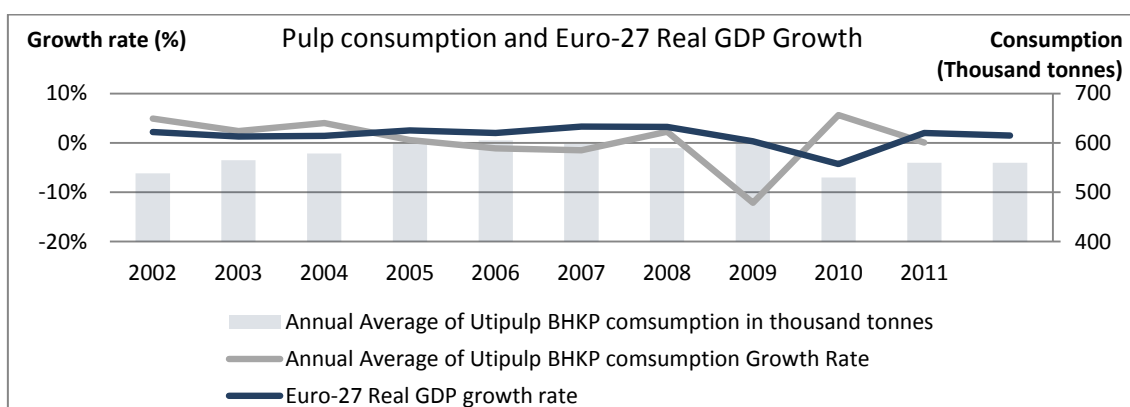
Figure 1 – Pulp consumption and Euro-27 Real GDP Growth relation. Source: Utipulp (April, 2012), Eurostat (April, 2012) and own calculations.

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[8] Utipulp is an European Association representing the pulp market users. By 2012, its members are Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Portugal, Spain, Switzerland and the United Kingdom.

Due to the global economic crisis and consequent low demand, pulp producers have been shutting down some of their plants. This fact implies lower production and therefore, lower supply. This trend can be observed in figure 2 (below), as the pulp inventory has been decreasing over the years in the Utipulp countries.
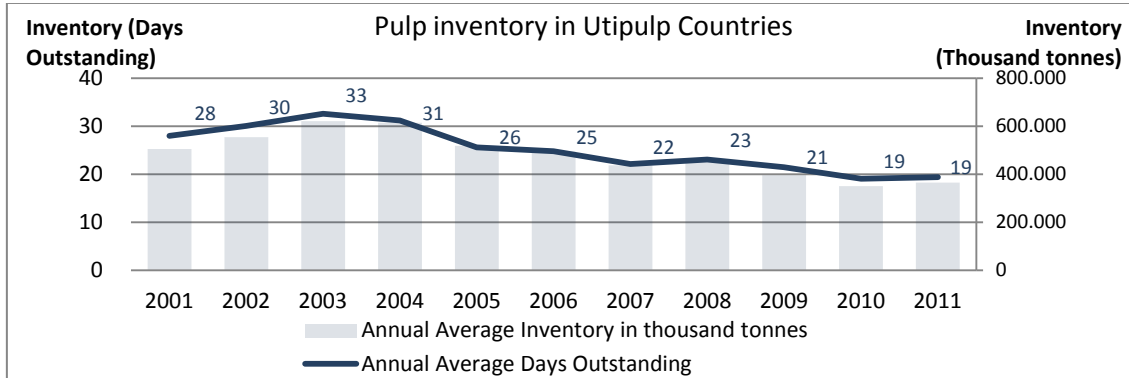
Figure 2 – Pulp Inventory. Source: Utipulp (April, 2012) and own calculations.

3.1.1.2. Paper Industry

The increase in digital information will continue to drive up demand for printed materials as people prefer to read on paper than from the screen. But, at the same time, magazines and newspapers will become obsolete as demand is replaced through online information.

The paper consumption's scenarios are completely different around the world. As it is possible to observe from figure 3 (below), the developing markets such as China and Latin America present a positive trend nonetheless, the mature markets as USA and Western Europe seem to slow down in the near future, although in still high consumption levels.
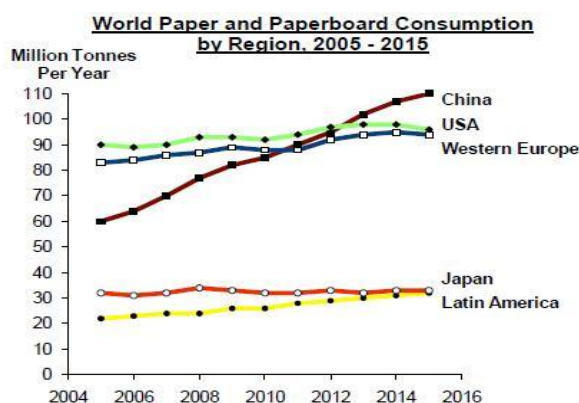
Figure 3 – Paper consumption by region. Source: Department of Foreign Affairs and Trade, RISI Report 2007, 2007 BIR Paper Report, 2007 World Market Population.

The industry continues to shrink in Europe and North America through cuts in the production and closure of some units. It is expected an intensive competition from Asia. Nonetheless, it is

impossible to foresee if these expansions will actually take place. Moreover, the expected high consumption levels in the emerging markets may be a buffer of the prices' volatility since those markets might absorb the excess supply verified in the developed markets.

3.1.1.3. Pulp and Paper Cyclicality

The cyclicality of the pulp and paper industries is affected by several factors, all interconnected with each other. The demand and the production capacity are two of those factors, previously referred in sections 3.1.1.1. and 3.1.1.2., and the price is the other important factor, also driven by the other two factors. In the particular case of Portucel, the price indexes followed are the PIX BHKP for the pulp and the PIX A4-Copy B for the paper.

As it is possible to observe from figures 4 and 5 (below), both pulp and paper industries present a cyclical pattern. The pulp industry seems to follow a less regular pattern when compared with the paper industry. It was not possible to obtain a 2011's figure for the paper index however, the average of the 2011's price was EUR 870/ton, in contrast with the EUR 814/ton in 2010. Figure 4 presents a longer cycle from Dec/2000 to Dec/2008 followed by a shorter cycle from Dec/2008 to Dec/2010. On the other hand, the paper industry seems to start a new cycle every four years.

Between 2000 and 2011, the pulp price registered a maximum of EUR 800 and a minimum of EUR 370, corresponding to a variation of 116%. On the other hand, the paper registered a maximum of EUR 860 and a minimum of EUR 750, representing a variation of 15%. This indicates that there is higher volatility implicit in the pulp industry.

Figure 4 – Monthly evolution of the price PIX BHKP per ton. Source: Portucel's 2011 Annual Report.

EVOLUÇÃO DO PREÇO MENSAL DE PAPEL PIX - "A4 COPY B"
EUR / ton
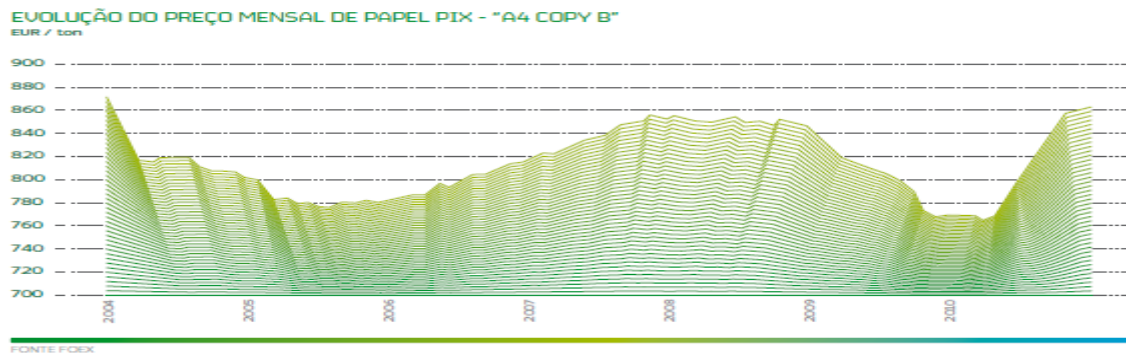
Figure 5 – Monthly evolution of the price PIX "A4 Copy B" per ton. Source: Portucel's 2010 Annual Report.

It is also important to refer that the purchase and sale of some materials are in currencies other than the Euro, the US Dollar being the most relevant, affecting Portucel's payables and receivables considerably. The Euro currency has been losing value over the USD (see figure 6 below) and with the Euro crisis getting worse, this trend seems to continue in the near future, negatively affecting Portucel with respect to its USA's competitors.
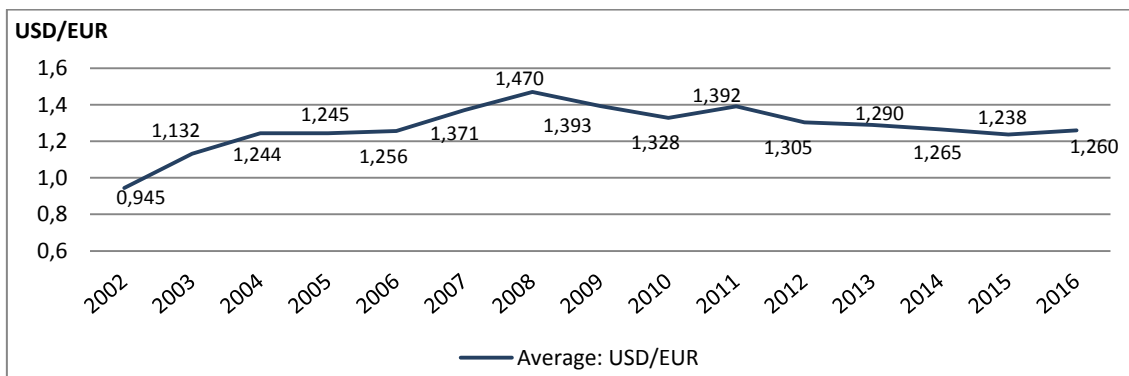
Figure 6 – Average USD/EUR exchange rate. Source: EIU (April, 2012).

3.1.2. Secil

Secil heads a diversified group with business interests in Portugal, Tunisia, Angola, Lebanon and Cape Verde, focused on the cement production at Portugal, Tunisia, Angola and Lebanon; Portugal, Tunisia and Lebanon are also responsible for the production of readymixed concrete; and finally, the aggregates are produced in Portugal and Cape Verde.

Cement and its similar products are the source of any type of construction therefore, it is commonsense to assume that Secil's revenues will be strongly tied with the construction industry, which by its turn is linked with the GDP growth. For this reason, it is logical to divide Secil in terms of geographic areas (please refer to Appendix 4 for further details of products' performance in each country).

3.1.2.1. Secil in Portugal

The Portuguese plants are responsible for the production of the three main products of Secil. Portugal is currently under the control of the International Monetary Fund (IMF) and there is great contention on the budget of the state. Moreover, Europe is facing a serious economical crisis and it was estimated that the construction sector was the most affected. The demand fell considerably in the developed countries (around 11%), which are the main targets of Secil's Portuguese operations.

According to Euroconstruct, the construction industry will remain at the same level of growth verified in 2002 until 2014. The main factors constraining its growth are the limited budget policies and austerity, specially faced in countries such as Ireland, Portugal, Spain and Italy. Nonetheless, the negative effect of the new building output is being smoothed by the building renovation and maintenance market. All in all, in 2012 it is still expected a negative growth and from 2013 onwards, the GDP growth trend turns positive in Europe. It remains negative in Portugal, although showing some recovery (see table 3).

Construction Real GDP Growth (%)	2008	2009	2010	2011P	2012E	2013E	2014E
Portugal	-4,80%	-9,90%	-6,20%	-10,00%	-12,90%	-5,00%	-0,70%
Euroconstruct 19 members[9]	-3,70%	-8,60%	-3,60%	-0,60%	-0,30%	1,80%	2,00%

Table 3 – Construction Real GDP growth. Source: ITIC from Euroconstruct (November, 2011).

3.1.2.2. Secil in Tunisia

Secil in Tunisia produces cement and concrete. The main downturns of Secil's operations in Tunisia have been the rising costs in raw materials and fuel and again, the global economic crisis. In contrast, the government incentivised the investment in the construction sector and public works leading to a positive growth in Secil revenues. Tunisia is not yet a liberalized market, as promised by the government since 2002, which means that the government still has some influence on prices. This market still presents political and economical risks for Secil.

3.1.2.3. Secil in Lebanon

The cement and concrete are the two production lines of Secil in Lebanon. The Lebanese market has been developing at a considerable level, registering a growth in the construction sector very similar with the GDP growth. In fact, Lebanon was the only Secil's unit which grew in relation to the previous year. Improvements on the production performance and the rise of sales and average prices were the main reasons.

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[9] Euroconstruct 19 members: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland and United Kingdom.

3.1.2.4. Secil in Angola

In Angola, Secil is only producing cement. Rules imposed by the Angolan government forbid any public investment as an attempt to liquidate all its previous payables. Moreover, Secil is facing competition by the Chinese producers who are gaining market share due to the lower prices that they are practicing.

3.1.2.5. Secil in Cape Verde

The most recent unit of Secil's portfolio is Cape Verde. The cement production grew in respect to the previous year although it only represented 1% of Secil's total revenues in 2011.

3.2. Companies' Operations

This section will be centred in understanding the main components of each company's operations. Here, it will be discussed what are the most relevant markets and how they are currently behaving. The revenues, the operating costs and the assumptions created in order to forecast the future periods will also be managed in this section. All the assumptions regarding real GDP growth and inflation rates may be consulted in Appendix 5.

3.2.1. Portucel

Portucel is specialized in producing pulp and paper. More recently, Portucel has been reinforcing its presence on the renewable energy sector. Starting by being self-sufficient, the energy currently represents around 11% of its total revenues, mainly due to the heavy investment in biomass and cogeneration. All its productive units are settled in Portugal: Cacia is responsible for the production of paper and energy; Figueira da Foz and Setúbal produce the three components – pulp, paper and energy, but its revenues are spread over one hundred and fifteen countries, accounting for more than 94% of Portucel's total revenues.

3.2.1.1. Portucel's Revenues
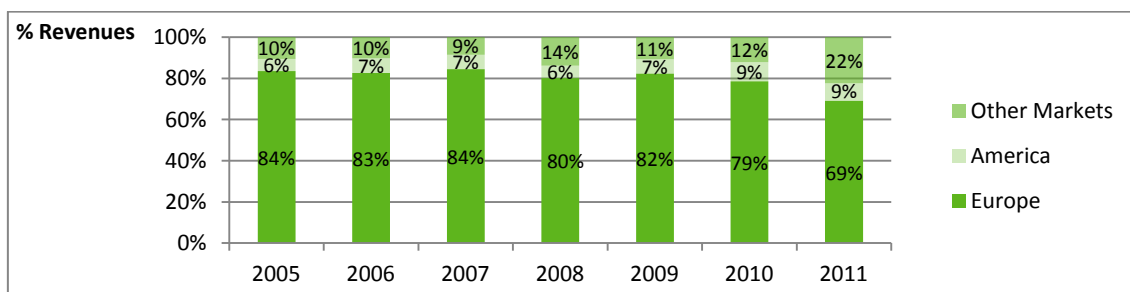
Figure 7 – Portucel's Revenues spread by Regions. Source: Portucel's Annual Reports.

Portucel's major market is Europe and, although it continues to be, from figure 7 (above) it is possible to observe that its relative value has been decreasing over the other markets. This trend is a mirror of the financial crisis that Europe has been facing.

Figure 8 (below) displays the percentage of each product sold as a percentage of Portucel's total revenues. It is noticeable that the paper's revenues are rising while the proportion of pulp sold is decreasing. In 2009, this effect is even more visible due to an investment in a paper machine that led to an increment of 0.5 million tons in the paper production capacity. As a consequence, it required more pulp to be integrated in the paper production than actually sold in the market. Indeed, as shown in figures 4 and 5 from section 3.1.1.3., the pulp's price presents higher volatility than the paper. Therefore, decreasing the pulp sold in the market allows the volatility of Portucel's revenues and, consequently its cash-flows, to sharply decrease.
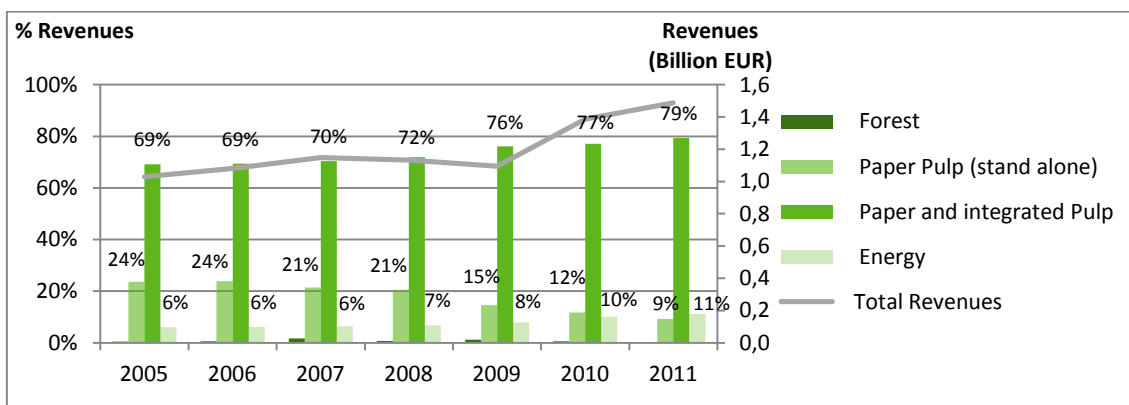
Figure 8 – Portucel's Revenues by product and Total Revenues. Source: Portucel's Annual Reports.

Portucel's revenues are mainly dependent on four factors: installed capacity, capacity utilization rate, quantity sold and selling prices.

3.2.1.1.1. – Pulp and Paper's Revenues

There are no investments anticipated in what regards the paper and pulp's capacity, therefore the capacity will be assumed to remain constant at 1.6 million and 1.4 million tons a year, respectively. The capacity utilization rate has been following a regular rate, consequently an average of the historical years was assumed as a constant figure throughout the forecasted periods (a rate of 99% for pulp and 98% for paper).

The quantity produced is given by the installed capacity times the capacity utilization rate. However, to produce one ton of paper, 0.73 tons of pulp are necessary. Thus, the quantity of paper sold was first determined by a rolling weighted average starting with the six previous years of paper produced and sold. Then, according with the 0.73 ratio, the pulp needed to be integrated in the paper production was determined and the remaining pulp produced is expected to be sold in the market. Due to the new paper machine implemented in 2009, Portucel substantially decreased its pulp revenues from the external market. This trend is

expected to remain in the future due to Portucel's new market positioning as a paper producer.

According to the available data, it will be assumed that the BHKP index tends to follow a duration cycle of 6 years, the same period as the forecast's length. On Appendix 6 the last price of the 1st semester is presented, thus it seems logical to consider it as the 2012's pulp average price, which is slightly higher than the one registered in 2011. The forecasted prices from 2013 to 2015 were assumed to be a rolling average of the past three lowest prices and then, the positive slope is expected to be the rolling average of the past three highest prices.

The paper industry presents a new cycle every four years. The price reached its maximum on 2011 and, according to Appendix 6, 2012 is a year for a price decline, being assumed that the same last price would be the PIX A4 Copy-B's average price of 2012. The price variation on PIX A4 Copy-B, in respect to the price average of 2011, also determined the Portucel's average price variation for 2012. Again, the downward trend was assumed to be the rolling average of the four lowest prices and the upward trend was assumed to be the rolling average of the four highest prices.

The prices of both pulp and paper also increase at the inflation rate forecasted for the 27 European countries (see figure 9 for the pulp and paper historical and forecasted prices).
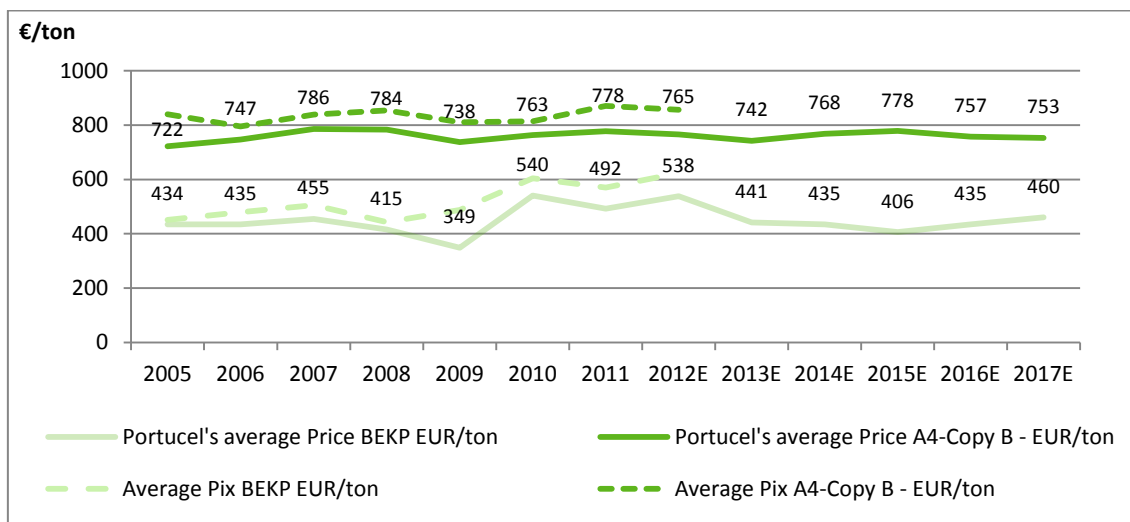
Figure 9 – Portucel's historical and expected average prices and average indexes prices of BEKP and A4-Copy B. Source: Portucel's Annual Reports and own calculations.

3.2.1.1.2. – Energy's Revenues

An investment made in 2009 allowed Portucel to increase its production capacity to 2.500 Gigawatts (GWh) and become the largest producer of energy through biomass in Portugal. In 2011, the energy produced rounded 1.900 GWh, representing more than 11% of Portucel's

total revenues, however, the low capacity utilization rate indicates that no investments are expected. The energy is targeted to the European market and the quantity sold is expected to increase at the CAGR[10] of the six historical years. Although the energy market liberalization might create some pressure on prices, it was assumed that energy price would grow at the inflation rate forecasted for the 27 European countries, representing an explicit period's CAGR of 2%, contrasting the 5% verified in the historical years.

3.2.1.1.3. – Forest and other operating Revenues

The forest and other non-allocated revenues represent the smaller slice of Portucel's revenues. Besides the seek for eucalyptus to produce pulp, Portucel's forests also produce oak and cork oak, enabling Portucel to profit from it. Nonetheless, due to the severe climate conditions in Portugal during the past couple years, which are expected to continue in the future, the forest's revenues were assumed to remain at the same level of 2011, increasing at the European 27 countries' inflation. The other non-allocated revenues (cork, wine and pine timber), the other operating income and the gain on disposal of non-current assets' revenues were assumed to increase at the inflation rate forecasted for the 27 European countries.

Please refer to Appendix 7 for detailed explanation and illustrative figures regarding the four sources of Portucel's revenues.

3.2.1.2. Portucel's Operating Costs

The main sources of Portucel's operating expenses come from "Inventories sold and consumed", "Materials and services consumed" and "Payroll costs", displayed in figure 10 as a percentage of the total revenues.
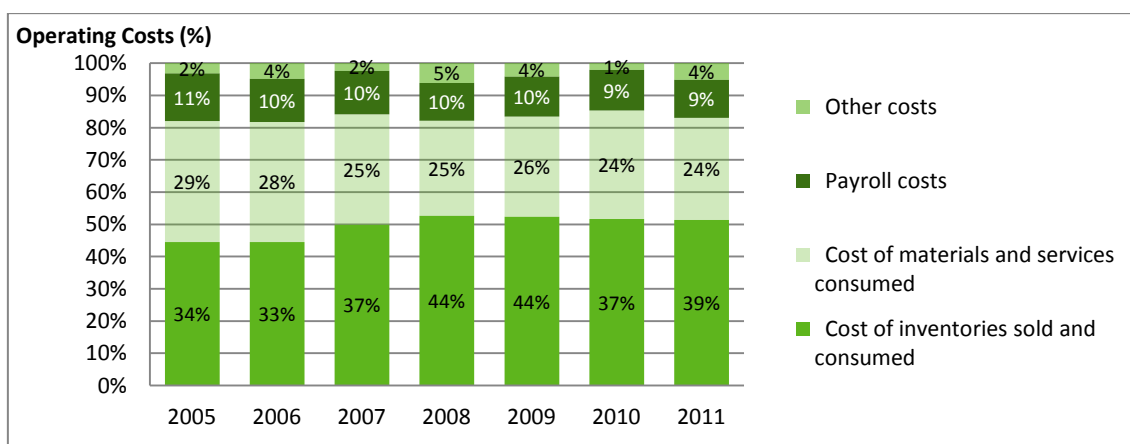
Figure 10 – Portucel's main Operating Costs as a percentage of the total Revenues. Source: Portucel's Annual Reports and own calculations.

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[10] CAGR refers to the Compounded Annual Growth Rate.

If detailed information was available, it would be possible to understand which costs are variable or fixed. In the absence of such data, it will be considered that the payroll costs have a fixed behaviour and the inventories sold and consumed, the materials and services consumed and the other costs reflect some dependency on the quantities produced and sold – variable costs. The most common practice in dealing with variable costs is to use the revenues as the main driver (Koller et al. 2005), but in Portucel's case, revenues may not be the best choice due to its dependency on prices that mirrors the characteristic cyclical pattern.

Portucel disclosed that the percentage of the variable costs allocated to pulp, paper and energy persist around 45.5%, 36.9% and 17.6%, respectively. The cost per unit produced is easily obtained and expected to increase at the Portuguese inflation rate for being the country where Portucel obtains most of its materials and also reflects the pressure on some resources' prices (please refer to Appendix 8 for further details).

The payroll costs are the other important source of the operating costs. As referred above, this account will be considered fixed and independent of the quantity sold. However, it cannot be ignored that the more Portucel produces, the more work force it needs. This point is justifiable by a significant increase in what regards the average number of employees from 2005 to 2011, precisely when Portucel invested heavier in a new paper machine and a new turbo generator.

Due to the lack of new big investments planned until the explicit period, it is rational to assume that Portucel will not need to employ 200 and 120 new people as verified in 2008 and 2009. Moreover, as the production is forecasted to remain at the 2011's rates, the number of new entries is expected to cancel the possible retirements. As for the wages, they are assumed to increase at the expected inflation rate for Portugal plus a bonus of 0.5% (please see Appendix 9 for more detailed explanations).

3.2.2. Secil

Secil's core business stands on the production of cement and its derivatives, namely clinker, readymixed and precast concrete, aggregates, mortars, binders, ordinary refuse and slag. Secil has been acquiring plants and nowadays it counts with operations in Portugal, Tunisia, Lebanon, Angola and Cape Verde. The diversification of countries allows Secil to better track the domestic market and its neighbors, but most important, it helps on the transportation costs' reduction. Secil faces high currency risk and, for being present in emerging markets, it also faces economic and political risks, as the dependency on prices' regulation.

3.2.2.1. Secil's Revenues

The cement and its derivatives are the main source of any type of infrastructure. The two major markets in the industry are the public works and the real state. Their growth is well linked with the GPD growth rate of each country. By comparing figure 11 (below) with the tables 3 (on section 3.1.2.1.) and 28 (on Appendix 5) for the real GDP growth rate, it is possible to notice that the demand for cement clearly grew in Tunisia and Lebanon, the same countries that presented an upward trend on the GDP growth rate. The Portuguese demand has been declining, similarly to the negative GDP growth and, Angola and Cape Verde presented an irregular pattern.
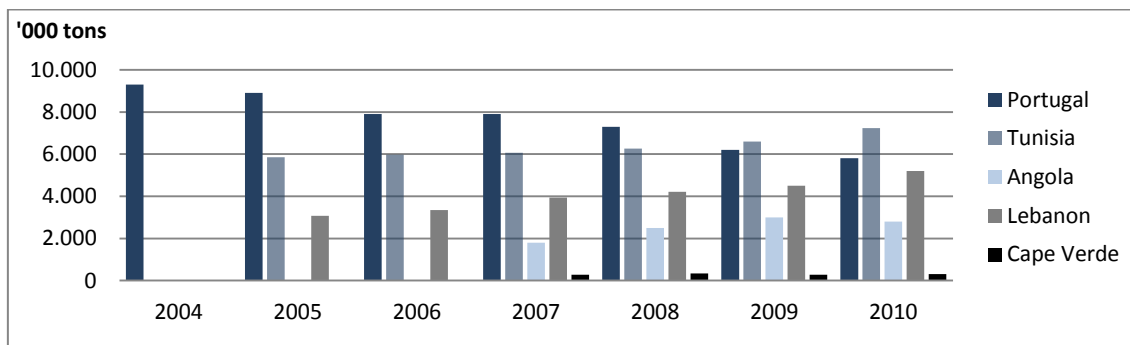
Figure 11 – Secil's historical cement market demand by countries. Source: Secil's Annual Reports.

Despite the Portuguese market demand that has been slowing down, the Portuguese revenues still represent the biggest slice of Secil's revenues. However, it is noticeable from figure 12 that the revenues from Tunisia and Lebanon markets have been increasing.
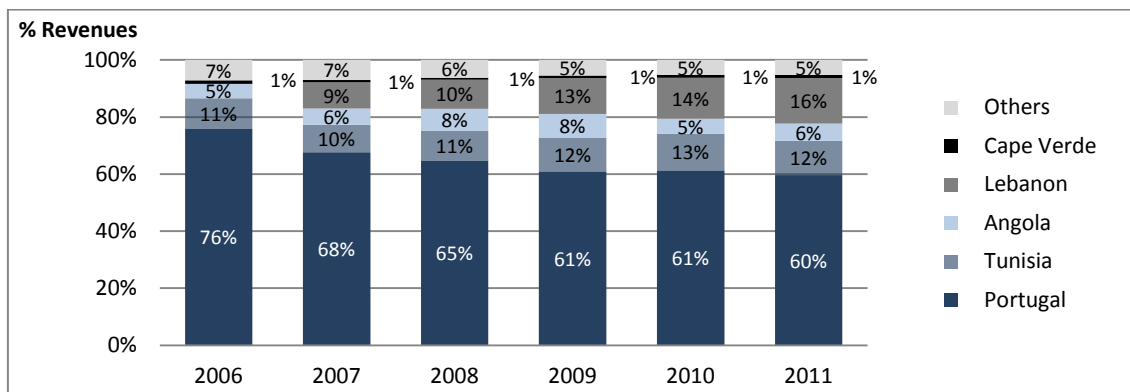
Figure 12 – Secil's historical percentage of revenues by country. Source: Secil's Annual Reports.

Prior to 2010, Secil displayed on its annual reports a partial income statement with the respective revenues and quantities sold for each country and product, from where it is possible to extract the price practiced per ton of product in each country.

The quantity sold in each country and product is expected to increase according to the real GDP growth rate, forecasted by IMF (Appendix 5), for each country. Secil's revenues in

Portugal are also brokendown into internal and external market, where the quantities sold of the internal market are dependent on the GDP forecasted by Euroconstruct to the Portuguese market (section 3.1.2.1.), and the external quantities sold will grow at the real GDP growth rate forecasted by the same source, but for the 19 European countries.

There are other countries where it is also possible to separate the internal from the external revenues, but due to the lack of information regarding those countries' main markets, it was assumed that both markets would grow at the same rate.

Regarding the price per unit of product, it was assumed that the prices of the whole portfolio of products of each country will grow according to the consumer price inflation forecasted for each of them and accessible on Appendix 5.

Although Secil's revenues might present some dependence on each country's GDP growth it is also important to bear in mind that Tunisia is still a market regulated by the government, imposing restrictions on prices and exportations. Therefore, it was assumed that the quantities sold for the external market will remain constant at the 2011's level and the prices practiced for both internal and external markets will also remain constant.

To access the historical and expected quantities sold and prices practiced for each product in each of the five countries, please refer to Appendix 10.

3.2.2.2. Secil's Operating Costs

The main sources of operating costs come from "Cost of sales and materials", "External supplies and services" and "Payroll costs", displayed in figure 13 as a percentage of the total revenues.
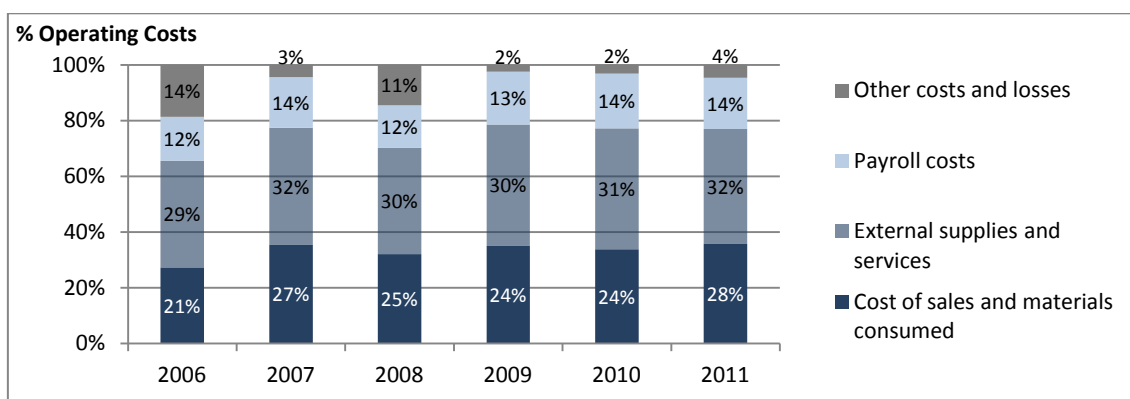
Figure 13 – Secil's historical operating costs as a percentage of the total revenues. Source: Secil's Annual Reports.

On Secil's Annual Reports it is displayed a partial income statement for each country, however, Secil does not breakdown each account of the operating costs per country. It is only available

on a consolidated basis. Each country's operating costs were assumed to be the difference between the EBITDA and the revenues. However, the operating costs extracted from the partial income statements also include the payroll costs therefore, it will not be possible to attribute a fixed behaviour to the payroll costs, independent of the quantity sold.

The cost per ton of each product and country was calculated through the quantity sold (since Secil does not provide information of the quantity produced, otherwise this should be used) and this was assumed to grow at the respective country's inflation rate (please refer to Appendix 11 for more details).

Although the payroll costs are already included in the operating costs referred above (and more detailed in Appendix 11), it is also important to have a perception of this account. The average number of Secil's employees has been decreasing, presenting 200 less employees in 2011 than in 2007. This layoff trend is justifiable by the low performance that Secil has been registering, mainly due to the global economic crisis.

Secil is expected to maintain its investment plan at the average of the historical period and, although some plants are producing less than their capacity, there are also other plants as Lebanon and Tunisia that are increasing their quantities sold. Also, Angola and Portugal are expected to start increasing their productivity near the end of the explicit period. Therefore, it is rational to assume that the number of new entries is expected to cancel the possible retirements. As for the wages, they are assumed to increase at the expected inflation rate for Portugal, since more than a half of Secil's total employees are in this country (please see Appendix 12 for more detailed explanations).

3.3. Other Valuation Issues

After performing the revenues and operating costs, the FCFF is then achieved by adding back the depreciations (as they do not represent a real cash out flow) and by subtracting the CAPEX and WC's investments. This section will precisely forecast these items, as well as the debt (where it will be possible to perceive the most suitable DCF model), interests expenses, pre tax cost of debt, risk free, market and country risk premium and the levered and unlevered cost of equity. It will also be explained how the net income will be distributed during the explicit period.

3.3.1. Net Working Capital

The Net Working Capital (NWC) is the minimum capital required to manage and fund the needs of the company in a daily basis. Therefore, only the current capital is taken into consideration. The NWC arises from the difference between the current assets – operating

cash, inventories, trade receivables and state and other public entities (SOPE) receivables– and liabilities – trade payables and state and other public entities payables.

Portucel bundles the grants to be received and used in the current assets and liabilities. Nonetheless, those grants are not operational, but in fact related with capital expenditures. Hence, in order to compute the historical and expected NWC needs, they must be removed (refer to Appendix 13 for more details on Portucel's grants).

As for the operating cash, due to the lack of information disclosed by both companies, it was assumed that the operating cash would rely on the minimum cash days outstanding over the total revenues. The SOPE accounts are in both companies related with the corporate and personal income tax, value added tax and others. Therefore, it seems reasonable to assume that for both companies the payables and receivables days outstanding related with the SOPE will be the average of the 2005/2006-2011 cycle, rolling towards 2017.

The other accounts – receivables, inventories and payables – are specific of each industry, hence carefully analyzed in the following sub-sections (refer to Appendix 14 for details on the NWC's computation).

3.3.1.1. Portucel's Net Working Capital

Portucel is a cyclical company and in order to find a pattern, figure 14 relates Portucel's days outstanding of the possible accounts that may suffer from it – receivables, inventories and payables – and the average prices per ton of pulp and paper practiced by Portucel.
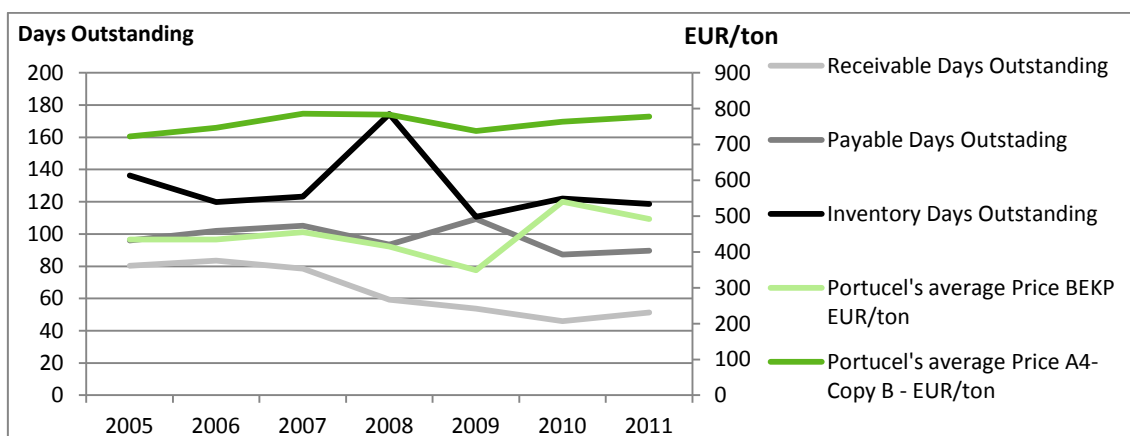
Figure 14 – Portucel's relation of average prices of BEKP and A4 Copy B with the days outstanding of receivables, payables and inventories. Source: Portucel's Annual Reports and own calculations.

Against all odds, it seems that there is no relation with the prices' cycle. The receivable days outstanding have been decreasing over time. That trend seems to be part of Portucel's policy

in decreasing the receivable days outstanding in order to better handle its net working capital needs. Therefore, an average of the period 2005-2011 is assumed from 2012 onwards.

The payable days outstanding have also been showing a downward trend since 2005 and there is no indication of the existance of a pattern. This ratio reached its maximum in 2009, a year where both pulp and paper prices registered an average price decrease. However, the possibility of a cycle will be disregarded since 2009 was the only occurrence. An average of the historical period will be assumed to estimate the expected payables' account.

During the provided historical period, the inventory days outstanding also registered a onetime event in 2008, mainly due to the prices' increase on some raw materials. Despite the presence of cyclicality on this account, there is not enough information to access a pattern therefore, a historical average will also be assumed. Moreover, the severe global economic crisis led some plants to shutdown, meaning that there are less paper producers and thus, inventories are expected to return to their normal level.

In order to access all the referred calculations regarding Portucel, please refer to Appendix 14A. Figure 15 (below) displays the NWC and the respective investment. As an average of the historical days outstanding was assumed for the future in all accounts, it is normal that both the NWC and its investment return to average levels.
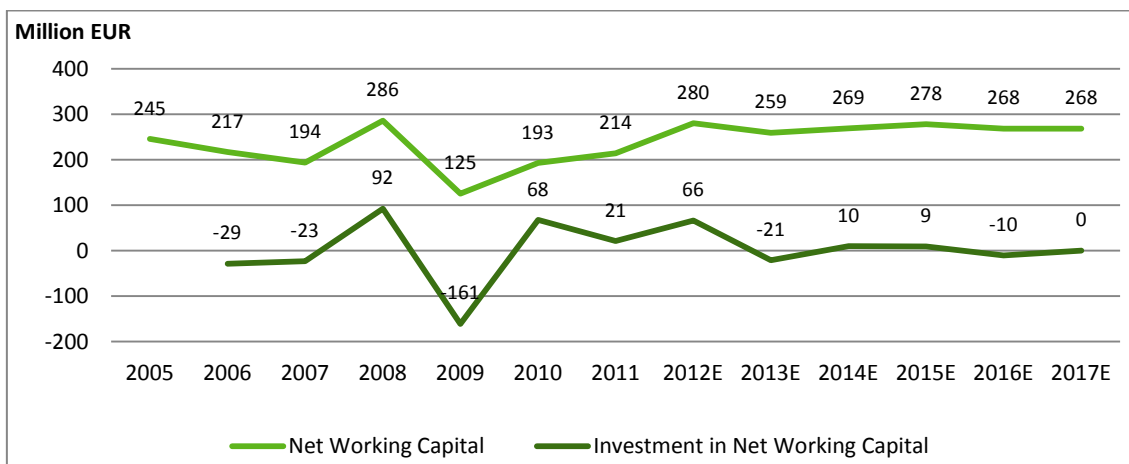
Figure 15 – Portucel's historical and expected Net Working Capital and Investment in Net working Capital. Source: Portucel's Annual Reports and own calculations.

3.3.1.2. Secil's Net Working Capital

Secil does not suffer from cyclicality therefore, it is rational to assume that the days outstanding of each account will remain at the average of the historical years.

The inventory days outstanding has been sharply increasing over the past years. This effect might be explained by the cement's lack of demand that Secil has been facing. The worldwide

economic crisis has been seriously damaging the construction sector and, as consequence, Secil's performance. As in 2011 the increasing trend of the inventory days outstanding started to slow down, it is foreseen that this trend will continue to decrease and stabilize at the average of the historical years.

Figure 16 (below) displays the historical and forecasted net working capital and the respective investment necessary to fund those needs. To access all the forecasted days outstanding and respective amounts of Secil's main accounts, please refer to Appendix 14B.
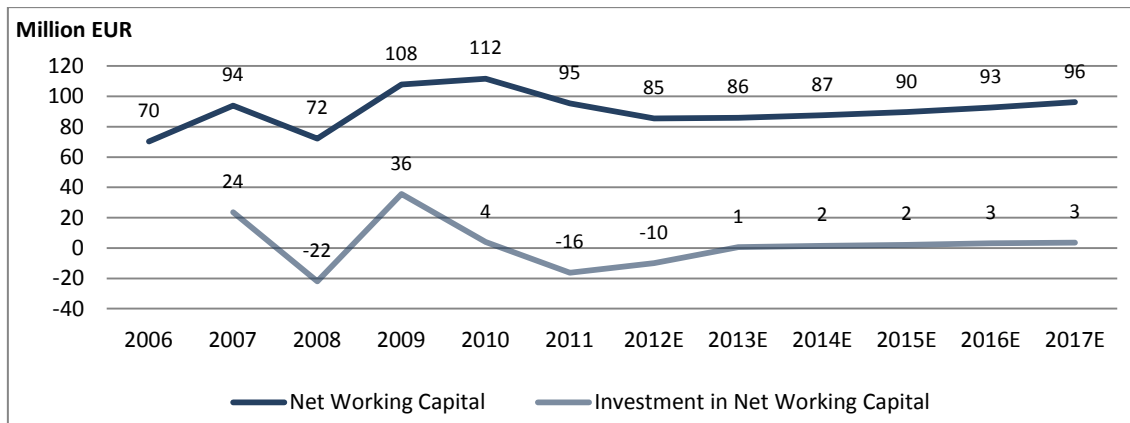
Figure 16 –Secil's historical and expected Net Working Capital and Investment in Net working Capital. Source: Secil's Annual Reports and own calculations.

3.3.2. Depreciation and CAPEX

The capital expenditure (CAPEX) is the amount of capital invested in the company, for new assets' purchase or even for operational improvements. In both cases, it will increase the value of the assets. But on the other hand, the assets must be depreciated. The connection between the depreciation and CAPEX explains why both accounts should be analysed together.

Again, the lack of information's disclosure imposes some constraints and a detailed forecast would not be possible. Complete information regarding the remaining life of each asset and the capital that the company invested and is expected to invest in each asset would allow a more accurate valuation. To overcome this issue, several middle steps were taken (refer to Appendix 15 for more details).

The historical gross assets accounts were brokendown by each class – Property, Plant & Equipment (PP&E), Goodwill, Other intangible and Investment properties – and each of these classes were also disaggregated by each type of asset. The same procedure was taken for the depreciation amount of each asset, which divided by the respective gross amount yield the average annual depreciation rate. The gross assets will grow at the CAPEX allocated to each asset, which subtracted by the cumulative depreciation yields the net assets.

3.3.2.1. Portucel's Depreciation and CAPEX

After the heavy investments made in 2009, in the following years, Portucel expects to only improve the performance of the current assets and spend, on average, EUR 100 million each year, which is in line with the historical period. It was assumed that the gross assets would grow at the historical average of the percentage of capital invested in each asset. The classes of assets being affected for the CAPEX are the PP&E and the other intangible assets. The other accounts are expected to remain equal to its 2011's amount.

The depreciation rate was assumed to be the gross depreciation amount over the gross assets and the average of the historical years was assumed to be the constant depreciation rate over the explicit period. Grants were excluded from this analysis and will be accounted for separately (for further details on Portucel's depreciation and CAPEX, please see Appendix 15A).

3.3.2.2. Secil's Depreciation and CAPEX

Contrarily to Portucel, Secil did not disclose how much it is willing to spend on its investment plan therefore, an average of the 2006-2011 period was assumed, yielding a CAPEX of EUR 53 million, approximately. It was assumed that the historical CAPEX would be given by the difference between gross assets from one year to another, although it produced a significant different value from what is registered on Secil's annual reports. Nevertheless, this was the only possible assumption to reach a proxy of how much is Secil spending on each of its assets. The goodwill and the other intangible assets are expected to remain equal due to its unpredictable behaviour.

The forecasted depreciation rate is assumed to be constant and equal to the average depreciation rate of the historical years, given by the depreciation over the gross assets (see Appendix 15B for details and illustrative tables).

3.3.3. Debt Structure

This chapter will define which type of DCF's model to use. As previously discussed in section 2.2.1.3., the application of the WACC or APV's approaches depends on the capital structure of the company. Moreover, depending on whether the debt is in equilibrium, the tax shield's approach might also change.

The first step is to check if the book value of debt matches its market value. Since both Portucel and Secil do not present any public rating and, assuming the role of a credit agency, a guideline of credit ratios was used from S&P's (2006, 2008, 2009) to attribute a rating for each company. If the credit ratio presents an irregular pattern, it means that the debt might not be in equilibrium and so, the market value of debt must be calculated. According to the credit

rating it is also possible to obtain the desired spread to calculate the pre tax cost of debt (please refer to Appendix 16 to access the ratings' equivalence among credit ratings' institutions and the respective spread for each rating).

Damodaran (2001) presents a simpler approach to get a company rating by assuming that the rating is simply given by the interest coverage ratio. The choice of this ratio stands on the fact that it is used by the two main rating companies (Moody's and S&P's), secondly it presents high correlation with the rating, and thirdly because this ratio changes as the company changes its financing mix, becoming riskier as the debt increases.

3.3.3.1. Portucel's Debt, Interest Expenses and Pre Tax Cost of Debt

Portucel's debt is mainly composed by four set of bonds, two of them issued in 2005 with maturities in 2012 and 2013 and the other two issued in 2010, both with maturities in 2015, totalling 550 million Euros in 2011. One of those sets is currently listed at the Euronext Lisbon, making it possible to perceive how the market is valuing this bond. According to Portucel's Annual Reports, the bond named "Obrigações Portucel 2005/2012" has been traded very close to its nominal value, signalling the hypothesis that Portucel's debt is in equilibrium. Nonetheless, this Portucel's bond is highly illiquid and the perception of just one bond among four might not be enough to assume a perfect equilibrium.

Koller et al. (2005) believe that most companies target their capital structure. In fact, Portucel presents a similar historical debt-to-value ratio therefore, it was assumed that Portucel would issue three new bonds – EUR 200 million in 2012, EUR 200 million in 2013 and EUR 150 million in 2015 – in order to keep the historical ratio's average. Most of Portucel's debt is indexed to the Euribor 6 months' rate, with the exception of one bond which is linked to the Euribor 3 months. The interest rate is given by the sum of the forward rate of Euribor at 3 or 6 months (provided by Bloomberg) and the correspondent spread of each bond and bank loan, available in Portucel's Annual Reports (see Appendix 17 for Portucel's debt structure, spreads and correspondent interest expense).

Starting by attributing a rating to Portucel's debt, on Appendix 18 it is possible to observe the historical and expected ratios which, according to the 2005 to 2017 average ranges, yielded a BBB rating. However, due to Portucel's cyclicality, it was assumed that Portucel's rating would downgrade to BB+. Portucel's credit rating has been improving in the main ratios, but at a stable level, leading to the conclusion that the book value of debt is similar to its market value and thus, in equilibrium. All in all, the approaches standing on the assumption that the book value of debt equals its market value are appropriate to evaluate Portucel.

By attributing a credit rating of BB+ to Portucel, it is possible to extract its pre tax cost of debt by accessing Appendix 16. It yielded a spread of 3,75% and a pre tax cost of debt of 5,27%.

3.3.3.2. Secil's Debt, Interest Expenses and Pre Tax Cost of Debt

Contrarily to Portucel, Secil does not have bonds to perceive the current market price of its debt. Moreover, Secil's annual reports do not disclose any information regarding the debt structure, the reimbursement plan, neither the spreads charged to calculate the interest expenses. Due to such lack of information, there is no any other possibility than assume that Secil's debt is in equilibrium.

The reimbursement plan was assumed to follow Secil's expected payment schedule and the interest expenses were assumed to remain equal to its historical average. As previously referred, Koller et al. (2005) believe that most companies target a debt-to-value ratio and, in order to respect this criteria, a new debt issuance was assumed in 2015 in the amount of EUR 40 million (please refer to Appendix 19 to access the detailed calculations and assumptions).

In order to calculate the pre tax cost of debt, it will be necessary to follow the ratios and ratings' ranges of S&P's guideline. Against all odds, Secil appears to present a rating of AA due to its high occurrence across all ratios and years. Nonetheless, Secil has been constantly failing some contract covenants and the figures of the EBIT interest coverage and ROA are the only ones that have been constantly yielding a rating lower than A. As previously referred, Damodaran (2001) highlights the importance of the interest coverage ratio and its high correlation with the rating. Moreover, an internal source disclosed that Secil's rating would be a BB or even B. All in all, it does not seem coherent to assume that Secil has a rating of AA thus, following the company's advice, a rating of BB will be assumed (see Appendix 20 for Secil's credit rating).

According to Appendix 16, a BB rating can be translated into a spread of 4,75%, which added to the risk free rate yields a pre tax cost of debt of 6,3%.

3.3.4. Dividends, reserves, retained earnings and minority interests

The dividends' distribution, the legal reserves and the retained earnings were computed equally for both companies. First, it is important to notice that the dividends and legal reserves of the year are only distributed on the following year. The distributed dividends were assumed to remain at the average of the historical years and the legal reserves were assumed to be 5% (the minimum required) until it reaches the 20% of share capital. It was assumed that the retained earnings of the year would be equal to the retained earnings of the previous year minus the dividends and legal reserves (of the previous year's net income) plus the net income

of the year. The minority interests were assumed to be a rolling average of the historical period (please refer to Appendix 21 to see both Portucel and Secil's data).

3.3.5. Risk Free Rate and Market Risk Premium

As mentioned in section 2.2.1.9.3., the risk free rate should represent the riskless rate, have the same length as the valuation period and be liquid. Therefore, in the Euro currency, the German 10-Years Government Bonds appear to be the most appropriate. On the date of July 2, 2012, the referred bonds registered a yield to maturity of 1,519%.

The Market Risk Premium (MRP) will follow the emerging markets' approach proposed by Damodaran (2012), previously mentioned in section 2.2.1.9.4.1. and widely accepted in the valuation community. The German market presents the maximum rating from the main rating institutions and, the better the rating, the lowest the country's risk. Therefore, it seems reasonable to assume that Germany is the referred mature market and the countries with a rating below AAA are the risky countries (see Appendix 2 to access the updated ratings of the countries referred in the valuation and the respective country risk premium).

Although all Portucel's plants are settled in Portugal, Portucel exports 94% of its total sales so, it is irrational to assume that Portucel bears the entire Portuguese risk. However, Portucel is still exposed to the Portuguese government policies, for example, Portucel comments on its annual reports the lack of support given by the Portuguese government regarding the carbon dioxide emissions, in comparison to the other European countries. Thus, it was assumed that Portucel would bear 50% of the Portuguese risk, yielding a country risk premium of 2,44%.

A separated valuation for each country where Secil operates was desired and one of the reasons holds precisely on the country risk premium. Given the need to consolidate the five countries risk premiums into only one, the most reasonable approach was to give to each country risk premium the weight that each of them plays on Secil's total revenues. The country risk premium of Secil would be 4,58%.

3.3.6. Equity's Beta and Cost of Equity

Under a public and a private firm, it is normal that Portucel and Secil's calculations will rely on different methods and assumptions. Their calculations will be handled in this section.

3.3.6.1. Portucel's Beta of Equity and Cost of Equity

One of the approaches to compute the Equity's beta is through a regression between the company and an index. The PSI-20, the MSCI and the Portucel's returns were sourced from Bloomberg in daily data until June 29, 2012, further compounded into monthly returns.

The index should be composed by companies of different industries and the PSI-20 index does not meet the criteria. Therefore, the advice from Koller et al. (2005) was followed and a regression between the company and the MSCI Index was computed. Koller et al. (2005) advice to use the most recent 60 months data on monthly returns. In fact, from table 4 it is visible that using data since Portucel went public smoothes the cyclical effect, yielding a lower beta. On the other hand, using 2-Years weekly data may put too much risk on the company.

Portucel's Beta of Equity	5Years, Montlhy	Since July, 1995	2Years, weekly
PSI 20 Index	0,75	0,76	
MSCI Index	**0,82**	0,78	
Peer Group's average (raw)	1,23		1,00
Peer Group's average (Adjusted)	1,18		1,03
by Bloomberg (raw)	0,89		1,56
by Bloomberg (Adjusted)	0,93		0,77

Table 4 – Estimated Equity Betas for Portucel. Source: Bloomberg and own calculations.

Fernández (2007c) claims that it is an error to use the beta of the peer group's average. The betas sourced automatically from Bloomberg are the raw and the adjusted betas, but there is not enough knowledge regarding the calculations behind it. All in all, the beta computed from the regression between Portucel and MSCI index will further be considered into the Portucel's valuation – levered beta equal to 0,82. Defined the main parameters, Portucel's cost of equity can be computed according with equation [23], which yields a rate of 8,46%.

As previously announced in section 3.3.3.1, it was assumed that Portucel would manage its capital structure to a target level thus, Cooper and Nyborg (2006)'s approach could be applicable and the unlevered cost of equity would yield 7,32% according to equation [17].

3.3.6.2. Secil's Beta of Equity and Cost of Equity

Regarding Secil, since it is not a public traded company, the only possible approach to reach its beta is assuming the peer group's average, although Fernández (2007c) claims that it is a mistake (see Appendix 33 for Secil's peer group choice). Four different betas from Secil's peer group were considered: the raw and the adjusted[11] betas in two and five years of data. The adjusted beta with five years of data was chosen for being in accordance with the CAPM theory and Koller's et al. (2005) advice.The harmonic average of the peer group yielded a levered adjusted beta of 0,94, which yields a levered cost of equity of 11,4% (equation [23]). As Secil manages its capital structure to a target debt-to-value ratio, Cooper and Nyborg's (2006) approach could be followed, yielding an unlevered cost of equity of 10% (equation [17]).

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[11] The adjusted beta from Bloomberg is given by the raw beta multiplied by two thirds plus one times one third in order to reflect the CAPM theory of beta equals one.

3.3.7. Semapa's WACC

Semapa's WACC is necessary to discount the perpetuity cash flows from the holding company. Like Portucel's, Semapa's beta was calculated through a regression with the MSCI Index (60 months) yielding a levered beta equal to 0,73. Semapa is expected to bear the country risk premium of Portucel and Secil according to the ownership proportions (3,66%). These calculations yield a cost of equity of 8,53%. As Semapa recently issued EUR 300 million in bonds at a spread of 6,85% and these bonds represent more than 20% of Semapa's long-term debt, it is reasonable to assume it as Semapa's cost of debt. The WACC can then be computed according with equation [4] on section 2.2.1.1.. A WACC of 6,3% was obtained for Semapa.

3.3.8. Assumptions' Viability

In order to validate the assumptions created, some profitability and solvency ratios were performed. Please refer to Appendix 22 to access Portucel and Secil's ratios. As it is possible to confirm, the expected averages are in line with the historical averages, which validates the assumptions created. To access Portucel and Secil's Income Statement, Balance Sheet and Cash-Flows Statement, please see Appendices 23 to 28.

3.4. DCF Valuation

The DCF valuation of both Portucel and Secil will follow the APV's approach. The WACC appears to offer more constraints, namely its dependency on the capital structure, which also implies the cost of equity and debt, and the fact that it bundles all the costs into just one.

The free cash flow to the firm (FCFF) was computed in accordance with section 2.2.1.. The unlevered value of the firm (Vu) was calculated by discounting the FCFF at the unlevered cost of capital according to Cooper and Nyborg's (2006) approach. As it is described in section 2.2.1.9.1., this approach stands for companies that manage their capital structure to a target level and, as both Portucel and Secil have been presenting similar debt-to-value ratios, it was logical to sustain the target, besides the current difficulties in accessing the debt market value. This assumption is also strengthened by Koller et al. (2005) who believe the majority of companies present stable capital structures.

The bankruptcy costs are assumed to be 30% of Vu once it is expected that both companies will keep a similar capital structure in the future. The probability of bankruptcy arises from Altman and Karlin's (2010) statistics and, as both Portucel and Secil are rated at BB, the probability equals 19,48% for both (see Appendix 1).

3.4.1. Portucel's DCF Valuation

Portucel has the particularity of being a cyclical company therefore, it was assumed that the FCFF and the VTS of the terminal value would be the average of the previous years. The TGR was first computed according to Damodaran's approach (table 5 below), however, it is not plausible to assume that Portucel would present a negative TGR as it is not liquidating itself. Therefore, the TGR will be the lowest between the expected GDP growth rate and the risk free rate assumed in this dissertation – the risk free rate (see table 6 below).

Terminal Growth Rate ('000 EUR)	2012E	2013E	2014E	2015E	2016E	2017E	Average
(1) CAPEX	100.000	100.000	100.000	100.000	100.000	100.000	0
(2) Depreciation, amortizatization	123.885	125.155	126.424	127.693	128.962	130.231	0
(3) Investment in Working Capital	-66.152	20.733	-9.813	-9.381	10.187	99	0
(4) Reinvestment = (1) - (2) + (3)	-90.038	-4.422	-36.236	-37.074	-18.775	-30.132	-36.113
(5) EBIT*(1-T)	216.102	161.406	178.773	173.611	146.606	141.665	169.694
(6) Reinvestment Rate = (4)/(5)	-42%	-3%	-20%	-21%	-13%	-21%	-21%
(7) Debt	859.705	800.226	780.524	751.715	732.013	712.310	0
(8) Equity	1.552.369	1.573.428	1.633.416	1.675.251	1.671.643	1.686.586	0
(9) Capital = (7) + (8)	2.412.074	2.373.654	2.413.940	2.426.967	2.403.656	2.398.897	0
(10) Average Capital	2.337.761	2.392.864	2.393.797	2.420.453	2.415.311	2.401.276	2.393.577
(11) Return on Capital = (5)/(10)	9,24%	6,75%	7,47%	7,17%	6,07%	5,90%	7,09%
Terminal Growth Rate = (6)*(11)	-3,85%	-0,18%	-1,51%	-1,53%	-0,78%	-1,25%	**-1,51%**

Table 5 – Portucel's expected terminal growth rate. Source: Damodaran (2005) and own calculations.

Portucel's DCF Valuation Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
Free Cash Flow to the Firm	**181.256**	**214.715**	**186.367**	**182.906**	**176.737**	**162.979**
Ke	8,46%					
ku (Cooper and Nyborg)	7,32%					
Kd	5,27%					
T	31,50%	31,50%	29,50%	29,50%	29,50%	29,50%
Terminal Growth Rate	1,52%					
PV FCFF at ku	181.256	200.079	161.826	147.994	133.255	114.506
Terminal Value	2.111.763					
Vu	**3.050.680**					
Yearly VTS	13.366	12.379	11.287	10.839	10.533	10.226
Discounted VTS		11.535	9.800	8.770	7.941	7.185
Terminal VTS	117.265					
PV VTS (Equation 19)	**175.863**					
Bankruptcy Costs	30%					
Default Probability	19,48%					
PV BC	**178.282**					
Enterprise Value	**3.048.261**					
Non-Operational Assets						
+ Excess Cash	309.828					
Non-Equity Claims						
- Debt	805.310					
- Unfunded Retirement Liabilities	16.683					
- Minority Interests	213					
- Other Non-Current Liabilities	18.109					
- Provisions	19.603					
Equity	**2.188.343**					
Number of Shares	**745.400**					
Price per Share	**2,94**					

Table 6 – Portucel's DCF valuation. Source: own calculations.

The equity is obtained by adding the non-operational assets and subtracting the non-equity claims to the enterprise value. Dividing the equity by the number of shares outstanding (total shares minus treasury shares), it yields a price per share of EUR 2,94. As all data used in this dissertation is from July 2, 2012, the comparable price is Portucel's closing price at that date which was EUR 1,926. Comparing both prices, the price targeted represents a return of 52% thus, investors are advised to purchase Portucel's stock.

3.4.2. Secil's DCF Valuation

Secil's Terminal Growth Rate ('000 EUR)	2012E	2013E	2014E	2015E	2016E	2017E
(1) CAPEX	52.833	52.833	52.833	52.833	52.833	52.833
(2) Depreciation, amortizatization	63.276	63.905	65.473	67.042	68.610	70.179
(3) Investment in Working Capital	-9.100	559	1.516	2.160	3.027	3.489
(4) Reinvestment = (1) - (2) + (3)	-19.543	-10.513	-11.125	-12.049	-12.750	-13.857
(5) EBIT*(1-T)	74.164	71.121	67.927	64.923	61.945	58.978
(6) Reinvestment Rate = (4)/(5)	-26%	-15%	-16%	-19%	-21%	-23%
(7) Debt	247.681	227.692	204.829	217.789	238.116	268.076
(8) Equity	524.349	550.963	573.266	589.488	600.950	606.489
(9) Capital = (7) + (8)	772.030	778.656	778.096	807.277	839.067	874.565
(10) Average Capital	750.681	775.343	778.376	792.686	823.172	856.816
(11) Return on Capital = (5)/(10)	9,88%	9,17%	8,73%	8,19%	7,53%	6,88%
Terminal Growth Rate = (6)*(11)	**-2,60%**	**-1,36%**	**-1,43%**	**-1,52%**	**-1,55%**	**-1,62%**

Table 7 – Secil's expected terminal growth rate. Source: own calculations.

Secil's DCF Valuation Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
Free Cash Flow to the Firm	**93.707**	**81.634**	**79.052**	**76.972**	**74.695**	**72.835**
Ke	11,44%					
ku (Cooper and Nyborg)	9,99%					
Kd	6,27%					
T	24,93%	24,93%	24,93%	24,93%	24,93%	24,93%
Terminal Growth Rate	1,00%					
PV FCFF at ku	93.707	74.222	65.349	57.852	51.043	45.253
Terminal Value	462.431					
Vu	**849.858**					
Yearly VTS	3.162	2.849	2.492	2.694	3.012	3.480
Discounted VTS		2.590	2.060	2.025	2.058	2.162
Terminal VTS	22.096					
PV VTS (Equation 19)	**36.154**					
Bankruptcy Costs	30%					
Default Probability	19,48%					
PV BC	**49.666**					
Enterprise Value	**836.346**					
Non-Operational Assets						
+ Excess Cash	98.757					
Non-Equity Claims						
- Debt	202.313					
- Unfunded Retirement Liabilities	0					
- Minority Interests	67.817					
- Other Non-Current Liabilities	4.252					
- Provisions	22.215					
Equity	**638.507**					

Table 8 – Secil's DCF Valuation. Source: own calculations.

According to the reinvestment rate and return on capital model, Secil would expect a negative TGR (table 7 on the previous page). Although the cement's consumption has been sharply declining and the prices becoming more competitive, Secil has the possibility to benefit from the dispersion of plants in the five countries where it has been maintaining or, in some cases, even gaining market share. This trend is expected to remain in the near future, but less severe. Therefore, it was assumed that Secil would grow at 1%, slightly below the economy's expectations (refer to table 8 on the previous page).

As Secil is not a quoted company, its equity value may only be compared with an estimation through Semapa's equity value. On July 2, 2012 Semapa was quoted at EUR 4,99 which multiplied by the shares outstanding (113 million) yields an equity of EUR 563 million. Then, if Portucel's equity times the percentage owned by Semapa and ETSA's equity book values (it is not multiplied by Semapa's ownership percentage as the book value was already extracted from Semapa's annual reports) are subtracted and added the cash flows and net debt of the holding, it is possible to obtain a reasonable value for Secil's Equity – EUR 515.647.303. The net present value of the holding's cash flows was estimated through a perpetuity growing at the Portuguese inflation rate and discounted at Semapa's WACC.

Comparing Secil's estimated equity through Semapa and Portucel's stock prices of July2, 2012 and the equity yielded from the DCF valuation, EUR 638.506.592, it is possible to conclude that Secil is undervalued, with a return of 24%.

3.4.3. Semapa's Valuation

The aim of this dissertation is to value Semapa, but for being a holding owning 75,85% of Portucel, 100% of Secil and 96% of ETSA, it was necessary to value each company separately. Portucel and Secil were extensively studied and DCF valuations were computed for both companies. ETSA will be considered at its book value as a DCF valuation would be worthless given its lower weight on Semapa's total revenues (less than 2%).

Semapa's equity is calculated by attributing the percentage of its ownership to each company's equity computed according with the DCF valuation and equity book value for the ETSA's case. Then, for being a holding, Semapa also has its own cash flows, financing needs and other liabilities. Therefore, the holding's net debt and unfunded pension liabilities must be subtracted, as well as the net present value of the holding's cash flows growing at the Portuguese inflation rate and discounted at Semapa's WACC, described in section 3.3.7.. The holding's cash flows are negative as it was already expected since the holding generates mostly

costs. Semapa's minority interests are not subtracted since they were already included in Portucel and Secil's valuations (see table 9 below).

Semapa's Equity			02-07-2012		
	Semapa's %	Number Shares	Price/Share	Equity	DCF
Portucel	75,85%	745.400.068	1,926	MV	2.188.343.436
				Portucel's Price per Share	*2,94*
				Status	*Undervalued*
				Return	*52%*
				Recommendation	*Buy*
Secil	100%		515.724.769	MV	638.506.592
				Status	*Undervalued*
				Return	*24%*
				Recommendation	*Buy*
ETSA	96%			BV	25.781.345
- Semapa's Holding Debt					1.082.220.812
+ Semapa's Holding Cash					392.866.916
- Semapa's Holding Unfunded Pensions					100.101.270
+ Semapa's Holding Cash Flows					- 377.714.589
Semapa		112.884.470	4,99	MV	1.156.976.679
				Semapa's Price per Share	*10,25*
				Status	*Undervalued*
				Return	*105%*
				Recommendation	**Buy**

Table 9 – Semapa's equity valuation breakdown by companies owned and respective recommendatiosn.

Source: Bloomberg and own calculations.

By July 2, 2012, Semapa's closing price was EUR 4,99 and, according to the valuations conducted in this dissertation, the price is EUR 10,25. Although the estimation more than doubles the comparison price, Semapa's target price presents a similar performance to the one registered in 2011. Therefore, investors are strongly advised to buy Semapa's stock.

3.4.4. Sensitivity Analysis

The ambition of this section is to stress the estimated equity values and price per share of Portucel, Secil and even Semapa. Portucel and Secil will be mainly tested through some key drivers, as price, quantity, TGR, country risk premium and Ku, and it will also be possible to see how those changes affect Semapa's price per share. Semapa will be tested by assuming variations on ETSA's equity book values and on the WACC's computation.

3.4.4.1. Portucel's Sensitivity Analysis

Value Drivers		Pulp and Paper Prices		Energy Prices		Operating Expenses		Quantities Sold	
	Dissertation	-2,5%	2,5%	-2,5%	2,5%	-2,5%	2,5%	-2%	2%
Portucel's Price per Share	**2,94**	2,46	3,41	2,72	3,17	3,36	2,51	2,87	3,00
Return		-16%	16%	-7%	8%	15%	-15%	-2%	2%
Semapa's Price per Share	**10,25**	7,87	12,63	9,17	11,43	12,40	8,10	9,94	10,56
Return		-23%	23%	-11%	11%	21%	-21%	-3%	3%

Table 10 – Portucel's sensitivity analysis on pulp and paper prices, operating costs and quantities sold.

Source: own calculations.

From table 10, it is possible to notice that Portucel and Semapa's share prices are more sensitive and provide higher returns when there is a variation on pulp and paper prices than in any other variables. A sensitivity analysis on the energy prices is of extreme importance given its probability of occurence. The Portuguese almost monopolist of energy production is reducing its selling prices which may force Portucel to also reduce its prices in order to become competitive in the market. Nonetheless, from table 10, this scenario only produces a small variation on both Portucel and Semapa's prices.

It was only possible to stress a variation of 2% on the quantities sold as more than that would surpass Portucel's production capacity. The low impact that this variable produces is justified by the connection that links the operating expenses with the quantities sold.

It is also interesting to notice that Semapa is the most affected in all the four tested variables. Moreover, the stressed negative variations would in fact provide a negative return in respect to the target price, but not to the share price on July 2, 2012.

Value Drivers		Country Risk Premium		Ku		TGR	
	Dissertation	CRPport * %REVport	CRPport	-1%	1%	-1%	1%
Portucel's Price per Share	**2,94**	3,88	2,23	3,75	2,36	2,50	3,56
Return		32%	-24%	28%	-19%	-15%	21%
Semapa's Price per Share	**10,25**	14,98	6,72	14,32	7,39	8,05	13,37
Return		46%	-34%	40%	-28%	-21%	30%

Table 11 – Portucel's sensitivity analysis on country risk premium, unlevered cost of equity and terminal growth rate. Source: own calculations.

Table 11 starts by stressing a variation on the country risk premium (CRP). It was decided to analyse how would the share price behave if instead of assuming that Portucel bears 50% of the Portuguese risk, it would bear the Portuguese risk times the percentage of Portucel's Portuguese revenues (CRPport*%REVport) or it would bear the whole Portuguese risk (CRPport). Both Portucel and Semapa would be extremely affected in both scenarios.

The test made to the unlevered cost of equity (Ku) and TGR demonstrates how a small variation of 1% can drastically changes the stock prices. However, when the Ku increases and the TGR decreases, neither Portucel nor Semapa's stock prices would be under their prices of July2, 2012. Moreover, as it was previously observed in table 10, these variables' variations also produce a higher effect on Semapa than on Portucel itself, which demonstrates the high dependency of Semapa on Portucel's performance.

3.4.4.2. Secil's Sensitivity Analysis

As can be observed from table 12 (on the following page), Secil's market value is most sensitive to changes in the operating expenses, justifying Secil's effort and great necessity in

cutting costs, even more when a cost increase produces higher negative variations than a cost decrease. Indeed, Secil is also very sensitive to prices' changes and, although the variation was applied on the prices of all countries and products, Secil may seriously face this risk if the Tunisian government keeps controlling the prices and if the Angolan market will keep purchasing from the Chinese at lower prices. Regarding the quantities sold, Secil may actually lose value if the quantities sold decrease by 2,5% in all countries, as already expected.

Value Drivers		Prices		Operating Expenses		Quantities Sold	
	Dissertation	-2,5%	2,5%	-2,5%	2,5%	-2,5%	2,5%
Secil's Equity (mn EUR)	639	413	888	1044	187	505	758
Return		-35%	39%	63%	-71%	-21%	19%
Semapa's Price per Share	10,25	8,25	12,46	13,84	6,25	9,06	11,31
Return		-20%	22%	35%	-39%	-12%	10%

Table 12 – Secil's sensitivity analysis on prices, costs and quantities sold. Source: own calculations.

Value Drivers		Country Risk Premium		Ku		TGR	
	Dissertation	-1%	1%	-1%	1%	-1%	1%
Secil's Equity (mn EUR)	639	699	587	732	564	589	701
Return		9%	-8%	15%	-12%	-8%	10%
Semapa's Price per Share	10,25	10,79	9,79	11,08	9,59	9,81	10,80
Return		5%	-4%	8%	-6%	-4%	5%

Table 13 – Secil's sensitivity analysis on country risk premium, unlevered cost of equity and terminal growth rate. Source: own calculations.

If Secil's country risk premium (CRP), Ku and TGR vary 1%, it would not lead to a loss of value in relation to its current market price. Moreover, a lower CRP and Ku provide higher returns than the opposite. The same effect could be seen in what concerns the TGR.

Contrarily to what was previously observed in Portucel's sensitivity analysis, Semapa's share price demonstrates to be less sensitive to changes on Secil's variables than on Portucel. Although Semapa fully owns Secil, it does not represent Semapa's major portion of value.

3.4.4.3. Semapa's Sensitivity Analysis

Value Drivers		Semapa's WACC		ETSA's Book Value	
	Dissertation	-1%	1%	-30%	30%
Secil's Equity (mn EUR)	639	624	651	637	640
Return		-2%	2%	0%	0%
Semapa's Price per Share	10,25	9,25	10,93	10,17	10,33
Return		-10%	7%	-1%	1%

Table 14 – Semapa's sensitivity analysis on WACC and ETSA's book value. Source: own calculations.

Semapa's WACC solely affects the present value of the holding's cash flows. As Secil's current market value was estimated by adding and subtracting Portucel, ETSA and holding's net debt, it makes all sense to include Secil's equity variations on this analysis once its current capital structure changes. However, table 14 indicates that no significant variation occurs on Secil's value when Semapa's WACC varies 1%, neither when ETSA's book value varies 30%.

Regarding Semapa, it is clear that changes on the ETSA's book values will not affect Semapa's share price, reinforcing this dissertation choice in valuing ETSA at its book value. Conversely, changes on the WACC will affect Semapa's value considerably. However, as the holding's cash flows are in fact a cost, when there is negative variation on the WACC, the costs increase, decreasing Semapa's share price.

3.5. Other Valuation Methods

The DCF valuations on section 3.4. followed the approach of Copper and Nyborg (C&N), where both companies managed their capital structure to a target level by issuing debt every time it was needed. However, this constraint might be too restrictive due to the current difficulties in accessing the debt market. Therefore, it was decided to apply Fernández's (2004, 2007a) approach described on section 2.2.1.9.1. since it does not impose restrictions to target debt-to-value ratios. It was also important to check WACC's method (referred on section 2.2.1.1.) as it is the most common method among the valuation's community. Contrarily to what has been done so far, this section is analysed by methods in order to observe what distinguishes them the most from the method previously used – C&N.

Fernández's approach does not require that the company manages its debt-to-value ratio to a target level thus, for both companies, it was only assumed new debt issues in case they presented negative excess cash. Debt variations affect the interest expenses and, consequently, the corporate taxes hence, it was essential to adjust the income statement. Additionally, the main advantage of debt over equity stands precisely on the possibility of benefiting from tax shield. In C&N's approach, Portucel had to issue almost EUR 576 million during the explicit period thus, it is perfectly logical that the VTS in C&N's approach is greater than in Fernández. On the other hand, Secil only issued EUR 40 million until 2017 in C&N, explaining why Secil's VTS does not differ considerably in both approaches.

It could also be told that C&N's higher VTS is contradicted by the lower discount rates that Fernández's approach yields. Fernández's unlevered cost of equity followed equation [12], resulting in 7,6% for Portucel and 10,3% for Secil. The final price following Fernández's approach was EUR 2,74 for Portucel, 7% lower than the price demonstrated in section 3.4.1. and for Secil it yielded an equity of EUR 616 million. In both companies, this approach did not present the same value as it was expected, but the difference was small, with Fernández's approach yielding lower returns (see Appendix 29).

Since the WACC also requires a constant capital structure, no adjustments were needed to perform the calculations in section 3.4.. The WACC was calculated according to equation [4]

and it yielded a rate of 6,7% for Portucel and 9,6% for Secil. The WACC is the lowest rate to discount the FCFF as it already incorporates the VTS. On the other hand, the WACC might not be perfectly adjusting the capital structures' changes yielding substantial prices' differences: EUR 4,47 for Portucel and EUR 691 million for Secil, translated into target prices' returns of 52% and 8%, respectively for Portucel and Secil (see Appendix 30).

3.6. Multiples Valuation

The multiples' valuation is computed as a complementary tool of the DCF's valuation. As referred in section 2.2.3., the choice of the peer group is essential to compute an accurate multiples' valuation and it should be determined by comparing similar growth, ROIC and capital structure. Then, the harmonic average of those multiples is performed and multiplied by the respective driver in order to reach a value. The multiples chosen were the PER and the EV/EBITDA for ranking in first and second places, respectively, in the whole variety of valuation methods to value European companies in a study from Morgan Stanley. Moreover, the EBITDA multiples are also defended for providing less volatility to the valuations.

3.6.1. Portucel's Multiples Valuation

In order to respect the same industry criteria, all comparable companies are from the paper and pulp industry. Moving towards the peer group's choice, a comparable analysis was done in terms of growth, ROIC and capital structure (see Appendix 31).

After chosing Portucel's peer group, the harmonic mean of the peer group's multiples is computed and then multiplied by the respective driver. As previously discussed, the forward multiples appear to perform better than the historical, nevertheless both forecasted and historical multiples were obtained and multiplied by the respective forecasted and historical Portucel's driver (see table 15 and Appendix 32 for further calculation's details).

Portucel's Multiples Valuation (EUR)					
	EV/EBITDA		Price Earnings Ratio		P/BV
Multiples	EV/EBITDA T12M	EV/EBITDA 2012	P/E 2011	Est P/E 2012	P/BV 2011
Peer's Harmonic Average	5,71	5,81	11,46	9,61	1,03
Portucel's Equity	1.679.041.560	1.940.782.052	2.249.900.721	1.857.699.346	1.597.638.735
Price per Share	**2,25**	**2,60**	**3,02**	**2,49**	**2,14**

Table 15 – Portucel's multiples valuation. Source: Bloomberg and own calculations.

Fernández (2001) refers that the P/BV provides accurate values for the paper and pulp industry. In fact, among all multiples in table 15, the P/BV is the multiple which presents the closest price per share of the current price (EUR 1,926). It is also visible that the forward EV/EBITDA yields a higher price per share than the historical multiple, which was already

expected since both pulp and paper prices increase in 2012. On the other hand, the forward PER yields a lower price in relation to the historical multiple, and this fact might be explained not only by the smallest dispersion in the PER, but also by the lower net income forecasted for 2012, mainly driven by the higher corporate tax applied. Nonetheless, when comparing the prices produced by both PER and EV/EBITDA with the price of the DCF valuation (EUR 2,94), it is possible to see a higher dispersion among the whole range of values.

3.6.2. Secil's Multiples Valuation

As Secil is a non quoted company, the pool of companies to build Secil's peer group was chosen through Cimpor's comparables. Although Cimpor holds more plants worldwide (Portugal and Spain, Africa, Middle East, China and Brazil), it is the only Portuguese cement company similar to Secil.

Secil's sales growth, ROIC, ROE and Net Debt/Equity were computed and a range of values was settled in order to choose the peer group (please access Appendix 33 for details). Then, the harmonic mean of the peer group's multiples is computed and multiplied by the respective driver of each year. Although Fernández (2001) states that the Price to Output is a proper multiple for the cement industry, such data was not found (see table 16 and Appendix 34 for details on Secil's multiples valuation).

Secil's Multiples Valuation (EUR)				
	EV/EBITDA		**Price Earnings Ratio**	
Multiples	EV/EBITDA T12M	EV/EBITDA 2012	P/E 2011	Est P/E 2012
Harmonic Average	5,30	5,14	17,00	10,35
Secil's Equity	**507.476.526**	**621.960.135**	**523.559.072**	**688.281.717**

Table 16 – Secil's multiples valuation. Source: Bloomberg and own calculations.

Secil's equity may only be compared with an assumption of what might be its current equity market value, which was computed through the difference between Semapa, Portucel and ETSA (previously explained in section 3.4.2.. These calculations point to Secil being valued at EUR 515.647.303, but the DCF valuation performed in this dissertation points to a value of EUR 638.506.592. Comparing Secil's estimated equity from the multiples valuation, it is possible to notice that the forward multiples are the closest values. Although the forward multiples present a lower multiple, this fact is contradicted by the higher forecasted EBITDA, due to Secil's policy on cutting costs, and higher forecasted net income, due to the higher EBITDA as well as lower depreciations. Nonetheless, most of them indicate that Secil is undervalued in relation to its estimated current market value.

4. Research Reports Comparison

The chosen reports were "BPI Equity Research Report 2012" – hereon referred as "BPI" – published on April 23, 2012 to compare Portucel and "Millennium Investment Banking 2012" – hereon referred as "MillenniumIB" – published on May 7, 2012 to compare Secil and Semapa. The reports' choice stands on the latest report date and information clarity. Both reports indicate to buy Portucel and Semapa's stocks.

4.1. Portucel's Results Comparison

Amounts in mn EUR	2010	2011	2012	2013	2014	2015
Dissertation - UWF Prices (EUR/ton)	763	778	784	758	786	800
BPI - UWF Prices (EUR/ton)	815	849	861	843	810	831
Dissertation - Refinancing needs			226	200	0	150
BPI - Refinancing needs			150	220	60	180
Dissertation - Sales	1.385	1.488	1.512	1.456	1.501	1.521
BPI – Sales	1.385	1.488	1.533	1.504	1.447	1.494
Dissertation - EBITDA	399	391	429	350	371	365
BPI - EBITDA	400	385	389	381	358	417
Dissertation - EBITDA Margin	28,8%	26,3%	28,4%	24,0%	24,7%	24,0%
BPI - EBITDA Margin	28,9%	25,9%	25,4%	25,3%	24,7%	27,9%
Dissertation - Depreciations	121	125	124	125	126	128
BPI - Depreciations	122	119	126	125	126	127
Dissertation - EBIT	278	266	305	225	244	237
BPI – EBIT	278	266	263	256	232	290
Dissertation - Net Financials	-20	-16	-23	-23	-22	-22
BPI - Net Financials	-20	-16	-16	-15	-12	-6
Dissertation - Taxes	-47	-54	-89	-64	-66	-63
BPI – Taxes	-47	-54	-54	-54	-64	-83
Dissertation - Net Income	211	196	193	138	157	152
BPI - Net Income	211	196	193	187	156	201
Dissertation - CAPEX	96	54	100	100	100	100
BPI - CAPEX	90	47	67	69	69	61
Dissertation - Changes in WC	68	21	66	-21	10	9
BPI - Changes in WC	55	3	16	2	4	-4
Dissertation - Dividends	62	0	119	117	97	110
BPI - Dividends	183	0	170	115	112	94
Dissertation - FCFF			181	215	186	183
BPI – FCFF	216	266	240	253	218	279

Table 17 – Portucel's expected results comparison. Source: Portucel's Annual Reports, own calculations and BPI (2012).

From table 17, the first difference clearly stands on a shorter explicit period assumed by BPI (2017 vs. 2015). This fact may undertake the whole comparison since it does not consider the whole pulp cycle. But at the same time, Portucel reduced its exposure to the pulp market's volatility thus, this difference might not be so significant.

Regarding the paper cycle, BPI assumed much higher prices for the UWF than the ones computed in this dissertation. It even considers higher prices when compared with the ones

reported on Portucel's annual reports. On the other hand, it seems to follow the same cycle's length (4 years).

Estimates for the refinancing needs are in line with what was assumed in this dissertation. Debt is not issued on the same year neither amount, but total debt issued during the explicit period is similar. This fact strengths Koller et al.'s (2005) point of view by believing that most companies target their capital structure.

The non-discloser of quantities sold assumed by BPI difficults more precise comments on sales. The sales forecasted by BPI are slightly higher in the first two forecasted years and slightly lowers on the last two. This difference may rely on a larger price decline in 2014 assumed by BPI, in opposition to a price's rise assumed in this dissertation. The EBITDA's values and margins are reasonably similar.

The CAPEX assumed by BPI is relatively lower than what was assumed in the dissertation. On the other hand, BPI's changes in WC are substantial lower. A possible explanation might be that BPI considered that the accounts affecting the WC would be less than what was assumed in this dissertation. These differences yielded a considerably lower FCFF in this dissertation in relation to BPI's estimates.

BPI's valuation was calculated according to the WACC method. Table 18 (below) summarizes the assumptions considered in both BPI and this dissertation's DCF valuation.

DCF Assumptions	Ke	Beta	Rf	MRP	Kd	D/E	D/V	E/V	T	TGR	WACC
Dissertation	8,5%	0,82	1,5%	8,4%	5,3%	56,1%	35,9%	64,1%	29,5%	1,52%	-
BPI	12,9%	1	7,2%	6,0%	8,2%	31,0%	23,7%	76,3%	29,0%	2,0%	10,7%

Table 18 – Portucel's key financial results comparison. Source: Portucel's Annual Reports, own calculations and BPI (2012).

As can be noticed, there is a substantial difference between the Ke estimated by BPI and this dissertation thus, attention will be given to its main components. Starting with the levered beta, BPI assumed a higher value for Portucel (0,82 vs. 1), implying a perfect correlation with the market. Nevertheless, the levered beta never reached such value when regressed with the two different indexes presented in this dissertation. Though, it matches with the peer group's average, but not only the peer group chosen by BPI is different from the one presented in this dissertation, but also this method should only be used when the company is not quoted.

However, it is on the risk free rate where the difference relies on the most. BPI incorporates the country risk premium into the risk free rate, but for such higher rate it was assumed one of two options: or BPI definitely did not assume the 10-years German government bonds as in

any time of this year those bonds reached a value above 2%; or it assumed that Portucel would bear the total Portuguese risk. In fact, Portugal is under the IMF control and austerity measures are being taken, but at the same time Portucel exports 94% of its total revenues, well spread among 115 countries therefore, Portucel should not be exposed to the total risk that Portugal is currently facing.

The cost of debt was also assumed to be higher than the rate demonstrated in this dissertation. Although there is no sign on the method used by BPI, it could be told that even assuming a BB rating to Portucel (versus a BB+) as referred by the company (with no certainty), the spread would surround 4,75% and the cost of debt would be no higher than 6,27%.

The DCF method chosen in this dissertation was the APV. As mentioned in section 2.2.1.3., one of WACC's setbacks is the need to know the market values of debt and equity in advance, when the aim of the whole valuation is precisely to achieve the Equity market value. Although it was assumed that Portucel would sustain a similar target ratio, that ratio is not perfectly equal during the explicit period. Thus, the APV provides better insights for calculating the tax shield over the precise amount of debt. On the other hand, BPI uses the WACC, but did not recalculate it every period in order to account for the capital structure's changes. Additional, the capital structure calculated by BPI is not sustained by any argument and it is not even Portucel's target hence, BPI's choice of capital structure might be questionable.

As well as the capital structure, the TGR chosen by BPI (2%) does not present any justification. Contrarily to what was assumed in this dissertation, BPI did not considered the fact that the TGR should never be higher than the expected GDP growth rate of the main economy where it operates, which is Europe (1,76%).

BPI ignores the number of shares owned by Portucel, obtaining the price per share by diving the equity for the total number of shares (767.500.000) instead of just assuming the shares outstanding (745.400.068), obtained by subtracting Portucel's treasury shares (22.099.092). Moreover, BPI does not make any reference to the grants received by Portucel, neither to some of its non-equity claims, such as unfunded pension liabilities and minority interest, which suggests that they might have ignored it.

All in all, BPI forecasted a price of EUR 2,50 per share – 15% lower than this dissertation's value (EUR 2,94) and 30% higher than the market price (EUR 1,93). In order to perceive where this difference relies on the most, a DCF valuation was performed with BPI's discount factors (the ones displayed on table 18), amount of debt, cash and total number of shares and, the yielded

price was EUR 2,00. This brings to the conclusion that the difference stands precisely on the discount parameters.

4.2. Secil's Results Comparison

MillenniumIB presents a valuation for each country where Secil operates. This dissertation's first intention was to perform a separate valuation by country as well, but the lack of information on Secil's annual reports did not allow it. Nevertheless, as it is described in sections 3.2.2.1. and 3.2.2.2., Secil's revenues and operating costs were forecasted separately and the comparison between this dissertation and MillenniumIB's results can be accessed on Appendix 35. As the valuation performed in this dissertation was on a consolidated basis, the comparison will mostly rely on the consolidated results displayed in table 19.

Consolidated	2010	2011	2012E	2013E	2014E	2015E
Dissertation - Revenues	535,8	506,9	488,1	493,7	510,0	527,7
Millennium IB - Revenues	535,8	506,9	501,2	513,3	528,4	549,2
Dissertation - Op. Costs	420,9	441,7	396,5	405,2	423,7	444,1
Millennium IB - Op. Costs	444,7	408,8	391,4	396,6	402,9	413,4
Dissertation - EBITDA	114,9	65,2	91,6	88,5	86,2	83,6
Millennium IB - EBITDA	91,1	98,1	109,8	116,7	125,5	135,8
Dissertation - CAPEX	-44,2	-62,2	-52,8	-52,8	-52,8	-52,8
Millennium IB - CAPEX	-17,8	-50,7	-25,9	-26,9	-28,2	-29,8
Dissertation - Changes in WC	4,0	-16,4	-9,1	0,6	1,5	2,2
Millennium IB - Changes in WC	27	-51,1	-14,6	-17,5	-18,8	-21
Dissertation - FCFF			93,7	81,6	79,1	77,0
Millennium IB - FCFF			52,9	53,2	56,3	59,2

Table 19 – Secil's consolidated expected results comparison. Source: Secil's Annual Reports, own calculations and Millennium IB (2012).

MillenniumIB's explicit period is shorter than the one assumed in this dissertation. Once again, this constraint might difficult the comparison in terms of assumptions and terminal value's estimates. This dissertation's consolidated revenues are more conservative compared with the MillenniumIB's forecasts. This fact aligned with the higher operating costs estimated in this dissertation lead to an EBITDA 30% lower compared with MillenniumIB's provisions. Notwithstanding, it is important to bear in mind that the consolidated results are not simply given by the sum of the portfolio of countries due to the intra-group transferences and this fact also constraints the comparison in the sense that each one could have assumed different intra-group values and there is no indication of MillenniumIB's assumptions.

MillenniumIB believes that Portugal and Tunisia will perform better than what was foreseen in this dissertation. In fact, there is evidence that MillenniumIB incorporates other results into Portugal therefore, it is complicated to understand how MillenniumIB forecasts the results in this group with higher returns around 10%. The EBITDA of Portugal forecasted by MillenniumIB

more than doubles the EBITDA computed in this dissertation however, it is important to notice that the historical operating costs and, consequently, the historical EBITDA do not match with what is reported in Secil's annual reports and there is no evidence on how MillenniumIB reached such historical values.

Both MillenniumIB and this dissertation expect potential growth in the Tunisian market. Although MillenniumIB forecasts higher revenues and costs, at the end, this dissertation foresees an EBITDA 8% higher (on average) than MillenniumIB.

In the Lebanese market, there is consensus between MillenniumIB and this dissertation's, both expecting positive growth in this country¸ being MillenniumIB's turn to be more conservative. Hence, this dissertation forecasts an EBITDA to Secil in Lebanon 25% higher, on average. In respect to Angola and Cape Verde, MillenniumIB expects Secil to decline its revenues but, although Angola presents an EBITDA slightly lower than this dissertation's estimates, Cape Verde is expected to perform a negative EBITDA during MillenniumIB's explicit period.

MillenniumIB does not disclose its estimates regarding depreciations neither taxes. However, due to a consolidated EBITDA 30% higher than what was computed in this dissertation, it is expected that MillenniumIB's cash flow from operations will continue slightly higher than this dissertation's values. But against all odds, MillenniumIB's FCFF is, on average, 30% lower than this dissertation and it is so by considering that Secil will spend half of what was assumed in this dissertation's CAPEX. Although the WC changes present negative growing values, it would not be enough to create such lower FCFF. Therefore, it is reasonable to say that MillenniumIB's depreciations are the main driver.

Secil	Rf	ERP+CRP			Cost of Equity			Cost of Debt			WACC			G
		Expl	Int	Perp	Expl	Int	Perp	Expl	Int	Perp	Expl	Int	Perp	Perp
Portugal (54% EV)	3%	17%	12%	7%	22%	16%	10%	8%	7%	5%	17%	13%	8%	2%
Tunisia (19% EV)	8%	9%	9%	9%	18%	18%	18%	14%	14%	11%	16%	16%	15%	7%
Lebanon (25% EV)	18%	12%	12%	12%	32%	32%	32%	25%	25%	21%	29%	29%	28%	17%
Angola (3% EV)	18%	12%	12%	12%	31%	31%	31%	24%	24%	21%	26%	26%	26%	17%
Secil - Enterprise Value %	**8%**	**14%**	**11%**	**8%**	**24%**	**21%**	**18%**	**14%**	**13%**	**11%**	**20%**	**18%**	**15%**	**7%**
Secil - Dissertation	**2%**		**11%**			**11%**			**6%**			**-**		**1%**

Table 20 – Secil's key financial results comparison. Source: Secil's Annual Reports, own calculations and MillenniumIB (2012).

MillenniumIB values Secil using the DCF WACC's approach for all countries where it operates thus, it was necessary to create discount assumptions to all of them (described in table 20). As previously mentioned, it was of this dissertation's intention to value each country separately, however, it was not possible thus, the discount parameters were assumed for Secil as a whole.

In order to compare MillenniumIB and this dissertation discount assumptions, Secil's discount factors were computed as a percentage of its weight on the total Secil's enterprise value estimated by MillenniumIB. More, MillenniumIB computed a different rate for the explicit period and perpetuity, and the average between both (intermediary). To facilitate the comparison, this dissertation and MillenniumIB's assumptions will be compared with Secil's intermediary rate as a percentage of the enterprise value.

The Secil's average cost of equity assumed by MillenniumIB is much higher than the one assumed in this dissertation. In order to perceive this difference, it is first necessary to compare its components. The risk free rate is definitely lower compared with MillenniumIB's rate. However, this difference solely relies on the rates assumed by MillenniumIB for the other countries, as the Portuguese risk free is similar to the one assumed in this dissertation. Calculating a risk free weighted average by revenues and countries would be perfectly rational, however, some countries do not have government bonds and the ones which have were not found. The sum of the average of the equity risk premium and country risk premium assumed by MillenniumIB matches the same rate assumed in this dissertation although the rate per country does not, as it is possible to confirm through Appendix 2. MillenniumIB does not display any beta used to compute the cost of equity, which questions the method used. So far, it is only possible to draw a suggestion that the main variable causing the cost of equity's divergence is the risk free rate.

Although there are no explanations regarding MillenniumIB's assumptions, it computed a different cost of debt for each country. But contrarily to the risk free rate and country risk premium, the cost of debt discriminated by country enquiries MillenniumIB's assumptions as Secil's annual reports do not disclose almost any information about it.

From MillenniumIB's report it is not perceivable how Secil's capital structure will behave thus, only limited comments are allowed regarding its choice by the WACC's approach once its main constraint stands precisely on a constant capital structure. However, the need to know the equity market value in advance may receive some critics. Secil is not a quoted company thus, its current market value must be deducted from Semapa's value. In this dissertation, such procedure was conducted (previously referred), but only used in comparative terms. Contrarily, MillenniumIB not only had to compute Secil's equity as a whole, as it had to create another assumption for each country where Secil operates. A sensitivity analysis would be useful to perceive how this assumption impacts Secil's total value.

The perpetuity growth assumed by MillenniumIB appears to be extremely high. First, MillenniumIB assumes that almost no CAPEX is invested during the explicit period which already constraints Secil's growth perspectives. Secondly, the construction sector was seriously damaged by the global economic crisis and, although this trend is expected to reverse, it is not projected to recover so fast.

In order to reach equity of Secil, MillenniumIB subtracted to the enterprise value a total of EUR 199 million in minority interests, which is substantially different from the value assumed in this dissertation (EUR 68 million). However, there is no justification for this value on MillenniumIB's report. Indeed, minority interest should be valued at market values and not book values as it was assumed in this dissertation (due to the lack of information necessary to compute a DCF valuation as advised by Koller et al. (2005)). At the end, MillenniumIB valued Secil's equity at EUR 596 million, translated into a positive return of 15% over this dissertation's current value estimate.

The best way to understand the effect of MillenniumIB's discount factors assumptions is to use them to discount the FCFF calculated in this dissertation, which yields a return of 27% of its current value, and 3% over this dissertation's value. The lower dispersion between this dissertation and MillenniumIB's equity values is acceptable as the low discount rate assumed in this dissertation is contradicted by the high TGR assumed by MillenniumIB.

4.3. Semapa's Results Comparison

Although both reports value Semapa as the sum of Portucel and Secil, MillenniumIB is the clearest report to compare it. As it was assumed in this dissertation, MillenniumIB also subtracts the holding's net debt and net present value of the holding's cash flows (CF). But the last one is assumed to be much higher than this dissertation (759 versus 378 million Euros). The rate assumed to discount the holding's CF was 10% versus the 6,3% assumed in this dissertation, though, the lack of MillenniumIB's explanations unables further comments. Moreover, MillenniumIB does not make any reference to the ETSA group.

All in all, Semapa was quoted at EUR 4,99 on July 2, 2012 and MillenniumIB values it at EUR 6,38 (28% return) versus this dissertation's value at EUR 10,25 (105% return). It is also important to be aware that MillenniumIB reaches the value per share by dividing Semapa's total equity for the total number of shares outstanding, without subtracting the treasury shares as it is supposed to.

As previously referred in sections 5.1. and 5.2., both BPI and MillenniumIB overvalue Portucel and Secil, respectively, in relation to their market prices. Notwithstanding, both reports

present a lower return over the stock price on July 2, 2012 in relation to this dissertation's return (see table 21 below).

	July 2, 2012	Valuation			Returns over July 2, 2012		
		Dissertation	BPI	MillenniumIB	Dissertation	BPI	MillenniumIB
Secil (mn EUR)	516	639		596	24%		16%
Portucel (EUR/Sh)	1,93	2,94	2,5		52%	30%	
Semapa (EUR/Sh)	4,99	10,25		6,38	105%		28%

Table 21 – Secil, Portucel and Semapa's prices and returns comparison. Source: own calculations, BPI (2012) and MillenniumIB (2012).

5. Conclusion

The main conclusion of this dissertation is that there is not an universal model neither method to value a company. There are some researches proving the accuracy of one over another, but the most important is to understand the assumptions behind each method and link them with each company's features in order to choose the most appropriate method.

The APV's approach appears to be gaining recognition into the valuation community. Although, it is believed that the lack of consensus regarding the best approach to value the tax shield is limiting its common practice. This dissertation illustrated two examples, one based on a target capital structure (Cooper and Nyborg) and another based on the debt level as a percentage of the book value of equity (Fernández). Despite of the low return's dispersion verified on both methods (7% for Portucel and 4% for Secil), their insights clearly differ thus, it could be pointed the need to continue researches in order to reach a global consensus. Despite of WACC's wide acceptance, it yielded a high return dispersion in relation to the APV's method. This stresses the conclusion that the WACC's applicability might had become obsolete, as referred by Luehrman (1997b), since it considerably overvalues companies.

Another interesting concluding point is that the research reports do not justify their assumptions and, comparing this dissertation's assumptions with those of the reports, there were inconsistent values on factors of easy computation. It could be referred the levered beta's calculation through a regression and the non adjustment of the shares outstanding. This raises the interesting question that analysts might be choosing the assumptions at their convenience.

Finally, it could be concluded that the valuation's accuracy highly depends on the information accessed. Although the effort of the responsible for the investor relations at Semapa, his limited time available and the fact that he was not allowed to disclose most of the information required constrained the valuation conducted. He was helpful by disclosing Portucel's expected CAPEX, Secil's annual report of 2011 (which was not published so far) and by suggesting the companies' ratings. On the other hand, the lack of data was mostly felt on the need for a precise investment plan and depreciations' schedule.

To estimate Portucel's revenues it would be interesting to access a longer historical prices' indexes of both pulp and paper and, as it exports 94% of its total revenues, it would also make sense to access the data in foreign currencies. On the specific case of Secil, a valuation by countries would be performed. Aware of these constraints, this dissertation's goal was to make the most reasonable assumptions and achieve the most accurate equity valuation.

6. Appendices

Appendix 1 – Probability of Default

Altman and Karlin (2010) developed a method to assess the cumulative probability of default for rated corporate bonds from 1971 to 2009. Table 22 presents the data for the cumulative 10 years after issuance per bond rating, rated by S&P's at issuance based on 2.527 issues.

Bond Rating	Default Probability
AAA	0,06%
AA	0,47%
A	1,19%
BBB	7,72%
BB	19,48%
B	38,68%
CCC	61,67%

Table 22 – Probability of Default. Source: Altman and Karlin (2010) from S&P's and NYU Salomon Center.

Appendix 2 – Country Ratings and Country Risk Premium

Each country's rating was recently sourced from trustable sources. The country risk premium was calculated by attributing an adjusted spread according to the rating and then, the adjusted spread, divided by ten thousand and multiplied by one and a half, yielding the country risk premium presented on table 23.

Country	Long-Term Rating	Source and Access	Country Risk Premium
Angola	Ba3	Moody's; May7, 2012	4,88%
Germany	Aaa	Moody's; March 19, 2012	0,00%
Lebanon	B1	Moody's; February 27, 2012	6,00%
Portugal	Ba3	Moody's; March 12, 2012	4,88%
Tunisia	Baa3	Moody's; April 13, 2012	3,00%
Cape Verde	B1	Standard&Poor's; May 7, 2012	6,00%

Table 23 – Country ratings and country risk premium. Source: Moody's, Standard & Poor's and Damodaran.

Appendix 3 – Portucel's Competitiveness and Risks

The pulp and paper industry is a very competitive market. The prices of both pulp – BEKP – and paper – UWF – depend on the supply and demand and are determined globally, which makes this industry very volatile and influenced by the economic conditions. The pulp demand depends on the capacity of the paper production as it represents paper's main raw material. Regarding the paper, historical studies show that there is a relationship between the paper demand and the macroeconomic conditions, where the financial crisis has been playing an important role on the paper's demand reduction.

The financial crisis forced some companies to shutdown some of their productive units. However, the producers from South America, mainly Brazil, Chile, Uruguay and Indonesia, have been gaining weight on the market due to their lower production costs. This trend has been deteriorating the positioning of the European producers. In order to smooth this negative trend, Portucel has been attempting to keep its high quality at lower costs.

Portucel faces serious competition from the north of Europe, more specifically from Finland and Sweden. But Portucel has been sustaining itself due to its strong position in the south of Europe and well consolidated markets such as Germany, France and United Kingdom. Moreover, the BEKP presents all the necessary characteristics to produce high quality paper and 85% of its production is produced in both the Iberian countries and Brazil, which offers Portucel a great competitive advantage over its European competitors.

All Portucel's assets are settled in Portugal: Setúbal, Figueira da Foz and Cacia. The three plants have the capacity to currently produce 1.4 million tons of pulp and 1.6 million tons of paper. Besides the investments made, Portucel is constantly upgrading its machines, putting them above the European average in terms of quality.

Portucel currently owns around 120.000 ha of forest, Eucalypt represents 72% of this legacy. The main threat of this product stands on the Portuguese low productivity rate and high demand worldwide. Portucel owns 54% of the total certificated forest in Portugal, but it still faces the risk of this percentage decreasing sharply. There is also the risk of fire, to which Portucel attempts to control by investing in its prevention. Eucalypt is the main raw material of pulp, but Portucel is not able to satisfy the whole production and, due to its scarcity, it is compelled to import and be exposed to the wood's prices variation.

The pulp is mainly integrated in the paper production. In 2011, the pulp sold represented only 9.3% of Portucel's total revenues therefore, its risk is nearly null for Portucel. Notwithstanding, the UWF represents 79,3% of the total revenues and in order to mitigate this risk exposure,

Portucel has been spreading its clients throughout 115 countries and, in 2011, its secondary market – not Europe, neither America – grew more than 107%. Portucel exports more than 94% of its products. Therefore, Portucel may face serious risks if there is any problem throughout the main channels.

In 2010, Portucel completed the investment of EUR 200 million in a new turbo generator to produce renewable energy. The energy is produced through the biomass generated from the pulp production, allowing not only the utilization of energy in the paper and pulp production, but also its sale.

Appendix 4 – Secil's performance by country and product

Secil's turnover is dependent on the level of activity in the building sector in each of the geographic markets where it operates. The construction sector in the mature economies depends on the level of residential and commercial building, as well as on the level of investments in infrastructures. The construction sector is highly sensitive to macroeconomic factors, where a downturn in the economic activity in any specific economy may lead to a recession in the building industry.

Secil's geographical diversification is the best mean of stabilizing its earnings. However, its business, financial situation and operating profit can be negatively affected by a downturn in the construction sector in any of the key markets it operates in.

In recent years, European Union and national legislation have been more demanding in what regards waste management. Secil complies with the legislation currently in force, having made substantial investments in recent years in this area. Although no significant changes to current legislation are envisaged in the near future, the possibility exists that Secil may need to undertake additional investments in this area in order to comply with any new legislation.

Energy is a cost factor with a substantial weight on the business carried on. Secil attempts to hedge to a certain degree against the energy price risk through the usage of alternative fuels at its factories and long-term electric power supply contracts for certain of its energy requirements. However, significant fluctuations on electricity and fuel costs can also have a negative impact on the Secil's business, financial situation and operating profit.

Regarding the need for significant investments in future acquisitions, Secil has interests in sectors undergoing consolidation and where growth opportunities may arise.

Portugal

There was a decline on the cement internal consumption, however it was compensated by the slightly increase on the exportation side. The market is more competitive than ever. The excess capacity raised a discrepancy on the demand/supply ratio, invoking cement's producers to lower prices. Secil is attempting to create a closer customer relationship in order to overcome this issue.

The revenues yielded from the concrete have been performing very poorly in comparison with the previous years, representing a negative growth of 10% in value in 2011. During the past ten years, the precast concrete's demand has been decreasing, leading to an excess supply and, consequently, to a large competition on prices. A similar scenario for the mortars and

binders was recorded. The aggregates also registered a negative growth of 10% in terms of quantity sold.

The entire volume decrease of Secil in Portugal can be explained by the crisis that the construction sector has been facing since 2002, mainly due to the real state segment. Excluding cement, all of the other products volume's decline are also explained by the most exclusive dependence on the internal market.

Due to the low productivity rate that Secil's Portuguese factories have, it was essential to control the productivity costs by the reutilisation of residuals as energy and raw materials, which helped less integration of other sources. The credit risk is getting higher since Portugal assisted companies entering in bankruptcy more often.

Madeira, an autonomous region of Portugal, started its negative trend in 2004 towards today, exclusively broken in 2008 when it registered a positive growth. However, it did not recover yet. Besides the economical crisis already referred, this region suffered a catastrophe which damaged important machines at Secil's plant.

Part of Secil's revenues in Portugal also arise from the ordinary refuse valorization, as an alternative for fuel and raw material. In 2010, this product represented an increment of 23% in value in comparison with the previous year.

Tunisia

Secil's Tunisian demand for cement recorded its first decline in 2011. The prices practiced in the market are controlled by the government, who in 2010 settled an average increase of 6%, which allowed Secil to increase its sales in volume. However, there was an offset by a contraction in exports due to the government restrictions on cement exports. In Tunisia, Secil also suffered increments on some resources, the greatest ones were gas, coal and fuel. Despite these difficulties, in 2010 Secil invested in a new cement mill allowing a capacity increment of two million tons of cement scheduled to start in November of 2011.

Lebanon

In Lebanon, the political stability is of great importance for Secil's operations in the country. Thankful to the great demand of real state and public works, Secil was able to perform well in Lebanon. In the domestic market it was foreseen an increase of 7% in the cement total market demand. This scenario prospered an increment of 4% on Secil's sales in 2011. The foreign market's sales, however, suffered a decrease by almost 95% in 2010, a level expected to remain in the future. The overall performance of the cement segment was positive, mostly

attributed to the practice of higher prices and operational costs' optimization, despite the increase in thermal fuel prices.

Despite the good performance of the cement sector, the same could not be said regarding the readymixed concrete segment in the Lebanese market, which deteriorated 9% in sales volume.

Angola

The Angolan government imposed a policy of containment of public spending, limiting the public investment's budget on public works, which by its turn, affected the cement demand. There were only few and small private investments. Aligning this fact with a cement's consumption decline around 20% in 2010 and a higher importation from China at lower prices led Secil's revenues to decrease 43% in 2010. In order to compete with the Chinese competition, Secil started to decrease the prices of one type of cement, being able to reverse the negative trend and in 2011 it registered a positive growth of around 10%.

Cape Verde

The main driver of the Cape Verde construction activity was the investment in public infrastructures, contrarily to the private sector that has been constantly delaying their projects. Secil performed well in 2011, with revenues' growth of 8%. Despite the loyalty of distributors in the various islands that largely contributed to this positive scenario, the oil prices' increase could hamper the business in certain islands. Similar difficulties were found for the aggregates and precast concrete markets, registering a lower growth of 5% in 2011, however, much better compared with the 33% of revenues volume's decline in 2010.

Appendix 5 – Real GDP growth and Consumer Price Inflation Rates

Tables 24 and 25 (below) refer to historical and forecasted real GDP growth and inflation rates by two different sources. Although Eurostat data might be a better proxy in what regards European data, table 24 sourced from the Economist Intelligence Unit provides longer periods of forecast, reason why it will be considered during this dissertation whenever referred. For the years following 2016, it was assumed to remain constant and equal to the 2016's rate.

Real GDP growth	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E
Euro area[12]	3,33%	2,99%	0,22%	-4,21%	1,81%	1,51%	-0,74%	0,50%	1,18%	1,54%	1,63%
EU27[13]	3,43%	3,20%	0,20%	-4,25%	1,99%	1,58%	-0,39%	0,78%	1,29%	1,74%	1,76%
Consumer Price Inflation											
Euro area	2,12%	2,16%	3,24%	0,26%	1,59%	2,61%	2,21%	1,79%	1,99%	2,01%	2,04%
EU27	2,26%	2,41%	3,48%	0,75%	1,95%	2,70%	2,39%	2,09%	2,23%	2,17%	2,32%

Table 24 – Historical and Expected Real GDP growth and Consumer Price Inflation Rates for Europe. Source: Economist Intelligence Unit (Accessed on May 2, 2012).

Real GDP Growth	2005	2006	2007	2008	2009	2010	2011	2012E	2013E
EU27	2%	3,30%	3,20%	0,30%	-4,30%	2%	1,50%	0%	1,50%
Annual Average Inflation Rate									
European Union	2,20%	2,20%	2,30%	3,70%	1,00%	2,10%	3,10%		
Portugal	2,1%	3,0 %	2,40%	2,70%	-0,90%	1,40%	3,60%		

Table 25 – Historical and Expected Real GDP growth and Consumer Price Inflation Rates for Europe. Source: Eurostat (Accessed on May 2, 2012).

Regarding the real GDP growth and inflation rates for Portugal, there are also tables 26 and 27 from two different sources. Although table 27 presents longer data, table 26 will be used whenever referred. This choice stands on the necessity to be consistent over the whole dissertation since the same source is used for other countries. For the years following 2015, due to the lack of data, the rates were assumed to remain constant and equal to 2015's rate.

Real GDP growth	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E
Portugal	1,37%	1,87%	0,04%	-2,68%	0,29%	0,65%	0,80%	1,33%	1,43%	1,40%
Annual Average Inflation Rate										
Portugal	3,04%	2,43%	2,65%	-0,90%	0,84%	1,09%	1,44%	1,59%	1,72%	1,82%

Table 26 – Historical and Expected Real GDP growth and Consumer Price Inflation Rates for Portugal. Source: International Monetary Fund (Accessed on June 20, 2012).

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[12] The Euro Area is composed by the following countries: Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, The Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland. Source: European Commission (Accessed on June 20, 2012).

[13] The EU27 countries are Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, The Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden and United Kingdom. Source: European Commission (Accessed on June 20, 2012).

Real GDP Growth	2011	2012E	2013E	2014E	2015E	2016E
Portugal	-1,5%	-4,0%	-2,1%	0,2%	1,7%	1,9%
Annual Average Inflation Rate						
Portugal	3,6%	3,1%	1,6%	1,2%	1,8%	1,8%

Table 27 - Historical and Expected Real GDP growth and Consumer Price Inflation Rates for Portugal.

Source: Ernst&Young by Oxford Economics (Accessed on June 18, 2012).

Since Secil operates in other four countries besides Portugal, their real GDP growth and inflation rates are useful and they can be accessed on table 28. Again, as the expected data does not go further than 2015, both rates will be assumed to remain constant and equal to 2015.

Real GDP and Inflation Rates		2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E
Lebanon	GDP growth	0,58%	7,50%	9,00%	9,00%	6,00%	4,50%	4,50%	4,50%	4,50%	4,00%
	Inflation	5,57%	4,06%	10,76%	1,21%	5,00%	3,44%	2,23%	2,20%	2,20%	2,22%
Tunisia	GDP growth	5,35%	6,35%	4,65%	2,95%	4,00%	4,97%	5,62%	5,71%	5,74%	5,37%
	Inflation	4,50%	3,15%	5,05%	3,73%	4,20%	3,50%	3,30%	3,10%	3,00%	2,90%
Angola	GDP growth	18,56%	20,28%	13,18%	-0,41%	7,06%	8,25%	6,26%	6,29%	5,74%	4,51%
	Inflation	13,31%	12,25%	12,47%	14,02%	15,04%	9,84%	8,68%	7,45%	6,45%	6,00%
Cape Verde	GDP growth	10,80%	7,79%	5,91%	4,07%	4,96%	5,47%	7,01%	7,07%	6,85%	6,20%
	Inflation	4,84%	4,39%	6,79%	1,25%	1,41%	2,00%	2,00%	2,00%	2,00%	2,00%

Table 28 - Historical and Expected Real GDP growth and Consumer Price Inflation Rates for Lebanon, Tunisia, Angola and Cape Verde. Source: International Monetary Fund (Accessed on June 20, 2012).

Appendix 6 – PIX BHKP and PIX A4 B-copy Prices (1st Semester)

Figure 17 –PIX BHKP and PIX A4 B-copy Prices for June 19, 2012 trade day. Source: FOEX (accessed on June 25, 2012).

Appendix 7 – Portucel's Revenues

Portucel's revenues are mainly dependent on four factors: installed capacity, capacity utilization rate, quantity sold and selling prices.

Pulp and Paper

None investment is foreseen in what regards the paper and pulp's capacity, therefore it will be assumed to remain constant at 1.6 million and 1.4 million tons a year, respectively (figure 18).
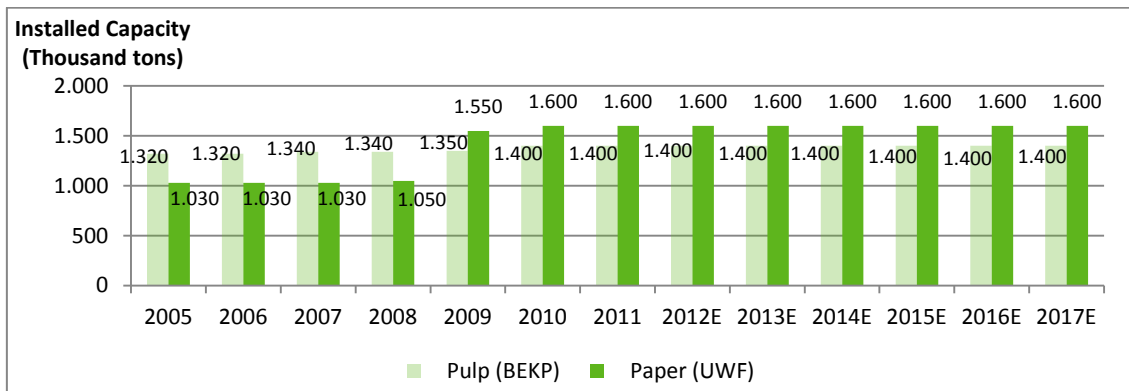
Figure 18 – Portucel's historical and expected installed Capacity. Source: Portucel's Annual Reports and own calculations.

The capacity utilization rate, presented in figure 19, seems to follow a regular rate. The utilization rate in 2009 accounts already with the paper machine which allowed an increment of 0.5 million tons but it only started to operate in the fourth quarter therefore, a weighted average was assumed. Given this, an average of the historical years was assumed to remain constant in the forecasted periods.
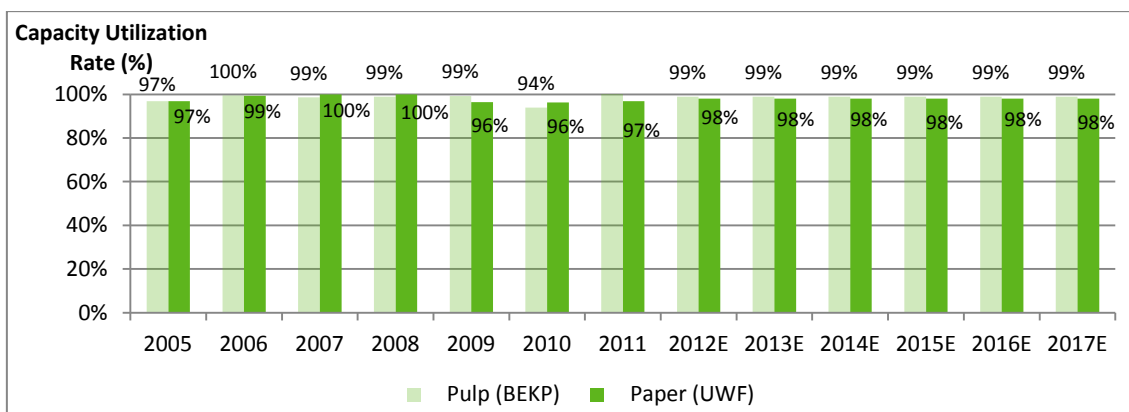
Figure 19 – Portucel's historical and expected capacity utilization rate. Source: Portucel's Annual Reports and own calculations.

The quantity produced of both pulp and paper is linked with the capacity utilization rate above described. And, the quantity of pulp sold is connected with the quantity that needs to be

integrated in the paper production. The quantity of paper sold was first determined by a rolling weighted average of the six previous years of paper produced over the quantity sold (see figure 20 displayed below).
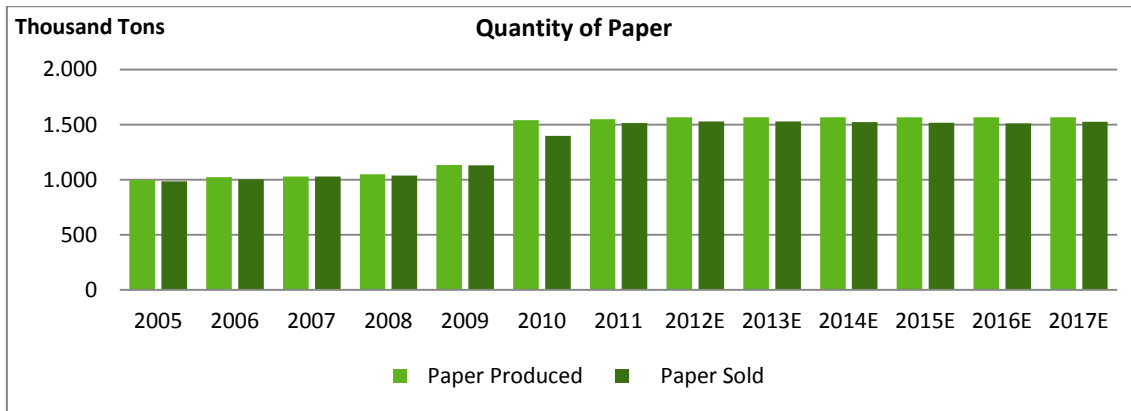
Figure 20 - Portucel's historical and expected quantities of paper produced and sold. Source: Portucel's Annual Reports and own calculations

The ratio of pulp needed to produce one ton of paper is 0.73 and it is assumed to remain constant in the future. Given this ratio and the quantity of paper to be produced, it is possible to extract the quantity of pulp needed to be integrated in the paper production line. Extracting this to the pulp produced, the quantity of pulp sold is obtained (see figure 21 below). Note that there was a big increase on the percentage of pulp integrated in paper in 2009 due to the new paper machine. This trend is expected to remain high due to Portucel's new market position as a paper producer.
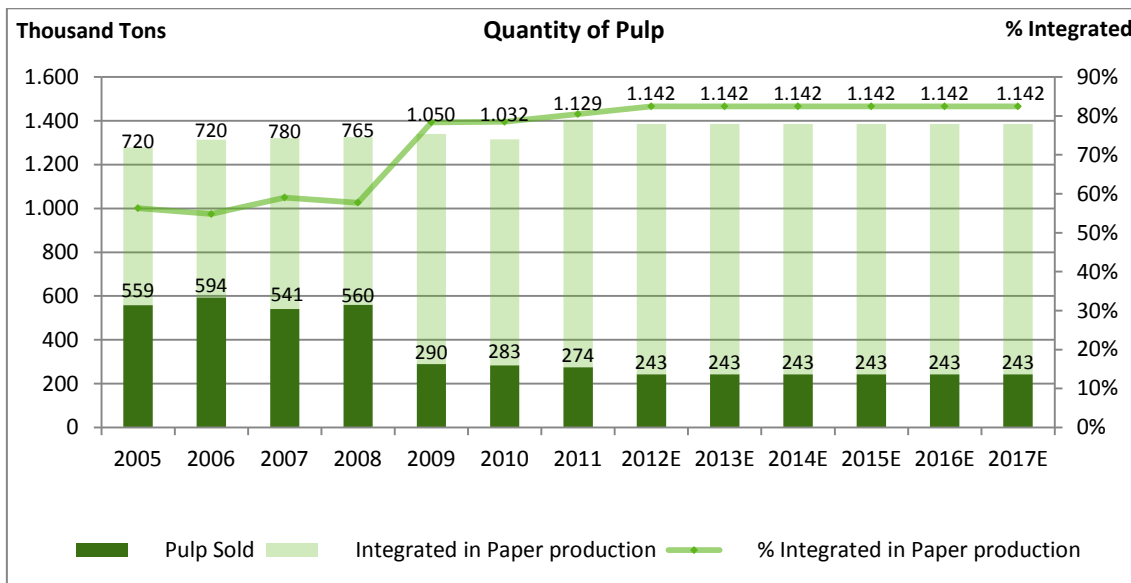
Figure 21 – Portucel's historical and expected quantities of pulp produced, sold and integrated in the paper production, so as the respective rate. Source: Portucel's Annual Reports and own calculations.

As previously discussed, the price is the main source of Portucel's cyclicality. In section 3.1.1.3., it was referred that the pulp industry does not follow a regular pattern to assume a precise cycle's duration. According to the company and the available data, it will be assumed that the BHKP index tends to follow a duration cycle of 6 years, the same forecast's length.

Figure 17 on Appendix 6 presents the latest price and it coincides with the end of the 1st semester thus, it seems plausible to assume it as the 2012's average price for the PIX BHKP, being the respective price variation assumed for the Portucel's average price. So far, the new cycle presents a slight decrease in 2011 and it appears to increase in 2012, giving the opportunity for a new cycle to start. In order to respect the average cycle duration, a rolling average of three lowest prices starts the new cycle. As it is possible to observe from figure 22 (below), the next maximum price occurs 6 years after the previous maximum in 2012.

The paper industry presents a new cycle every four years. The price reached its maximum on 2011 and, according to figure 17 on Appendix 6, 2012 is a year for a price decline and a new cycle to start. Again, as it presents the latest price of the 1st semester, it will be assumed that the referred price will be the 2012's average price of Paper A4 Copy-B. This price variation represents a decrease of 1.6% in respect to 2011 thus, the same price variation was assumed to calculate Portucel's 2012 average price. For 2013, the price practiced by Portucel was assumed to be an average of the lowest four previous prices and the prices' increase were assumed to be an average of the four highest prices. This formulation was assumed until the end of the explicit period (see figure 22 below). The prices of both pulp and paper also increase at the inflation rate forecasted for the 27 European countries.
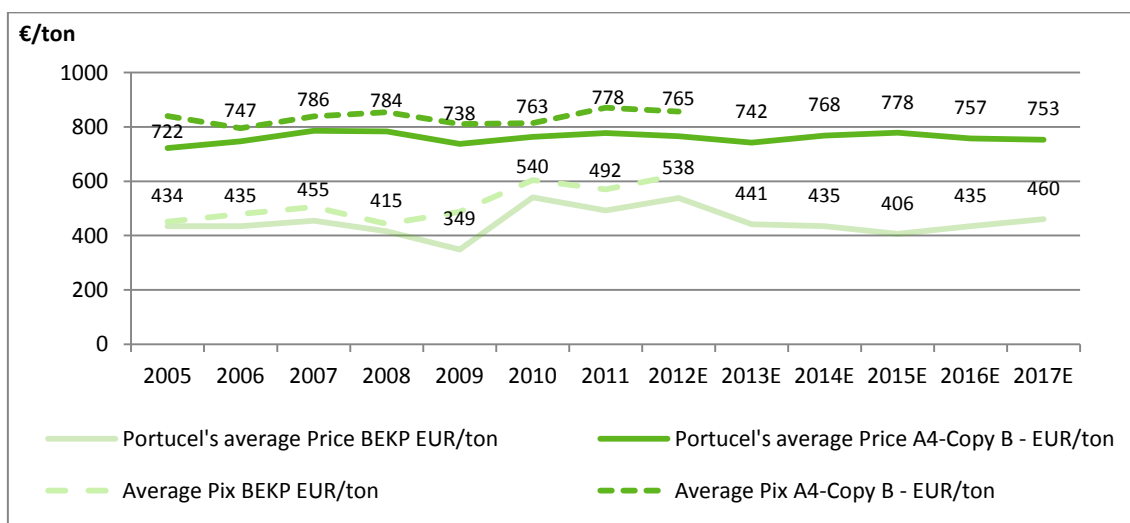
Figure 22 – Portucel's historical and expected average prices and average indexes prices of BEKP and A4-Copy B. Source: Portucel's Annual Reports and own calculations..

Energy

In 2009 Portucel invested heavily in a new turbo generator to produce energy through biomass. That investment led Portucel to increase its production capacity to 2.500 Gigawatts (GWh) and become the largest producer of this type of energy in Portugal. In 2011, the energy represented more than 11% of Portucel's total revenues and it is sold to the European market. Although Portucel is able to produce 2.500 GWh, it only produced 1.900 GWh in 2011. The lack of demand might explain this fact thus, no investment in capacity increases are expected. The quantity sold is expected to increase at the CAGR[14] of the six historical years (see figure 23).
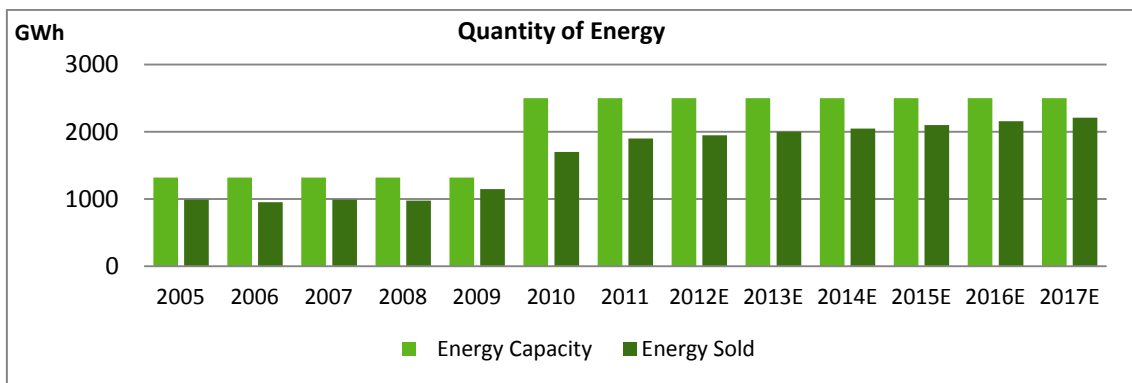
Figure 23 – Portucel's historical and expected quantities of energy capacity and sold. Source: Portucel's Annual Reports and own calculations.

Energy's prices will increase at the inflation rate forecasted for its market, assumed to be the 27 European countries. Due to the market liberalization, Portucel might expect some competition on prices. In order to reflect this pressure, the historical CAGR was almost 5% and and now it is expected to be only 2% (see figure 24 below).
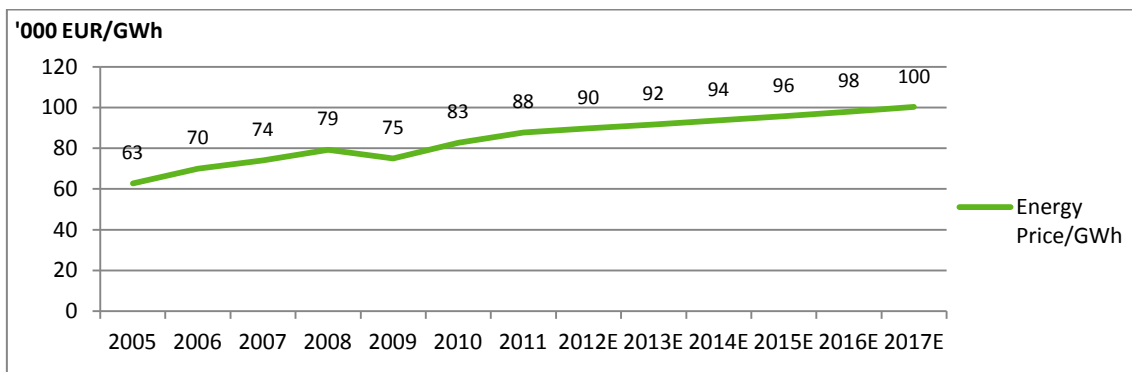
Figure 24 – Portucel's historical and expected energy prices per Gigawatt sold. Source: Portucel's Annual Reports and own calculations.

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[14] CAGR refer to the Compounded Annual Growth Rate.

Forest and Other Revenues

The forest and other non-allocated revenues represent the minor slice of Portucel's revenues. Regarding the forest, it is needed to bear in mind that Portucel actually owns 120.000 ha of forest, but those do not satisfy Portucel's eucalyptus demand. Indeed, those forests also produce other plants (mainly oak and cork oak), which enables Portucel to profit from it. The climate conditions have not been helping the sustainability of those forests, explaining the minimum reached in 2011 in comparison with the historical available data. As the historical years seem to present exorbitant values for the current conditions, the forest's revenues were assumed to remain at same level of 2011, increased at the European 27 countries' inflation (see figure 25).
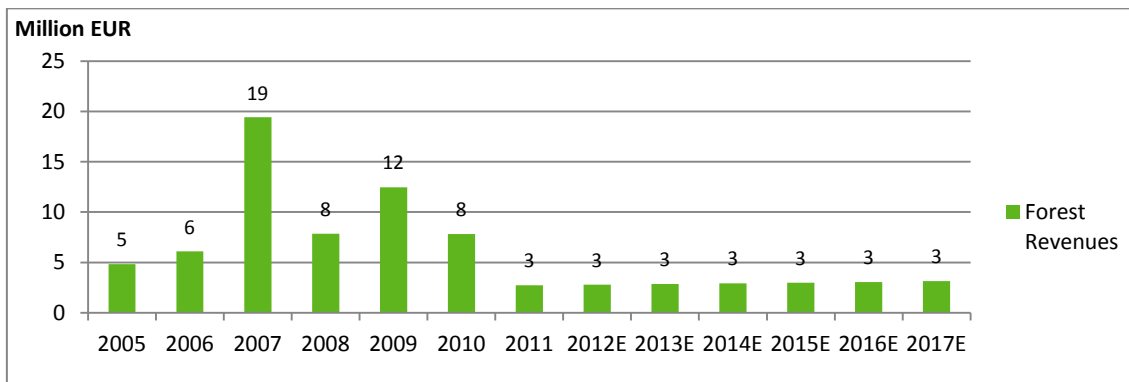
Figure 25 – Portucel's historical and expected revenues from the forest. Source: Portucel's Annual Reports and own calculations

Regarding the other non-allocated revenues (mainly linked with the sale of cork, wine and pine timber), the other operating income and the gain on disposal of non-current assets, it was assumed that in the three sources, the revenues will increase at the inflation rate forecasted for the 27 European countries.

Appendix 8 – Portucel's Variable Operating Costs

The most common practice in forecasting the operating costs is to consider it as a percentage of the revenues – the more it sells, the more materials are consumed (Koller et al., 2005). It might be a good proxy for some companies, but not for Portucel due to its cyclicality feature.

A fragmentation of the accounts inventories sold and consumed and materials and services consumed would provide better insights for the assumptions to be considered and thus, forecast more reliable periods. Therefore, the best proxy seems to be relating the operating costs with the quantity of pulp, paper and energy produced, since using the quantity sold would most likely underestimate the costs. Portucel disclosed that 45.5%, 36.9% and 17.6% of the variable costs are allocated to respectively pulp, paper and energy. Given this, it is easy to compute the cost per unit produced.

The prices are expected to increase at the Portuguese inflation rate, due to the fact that Portucel's units are all settled in Portugal and the majority of the materials used are also purchased in Portugal. As it is possible to notice from figures 26 and 27, the possibility of a pattern between the cost per ton and the cyclicality of the prices of pulp and paper was immediately excluded.

Figure 26 – Pulp's cost and price per ton.   *Figure 27 – Paper's cost and price per ton.*
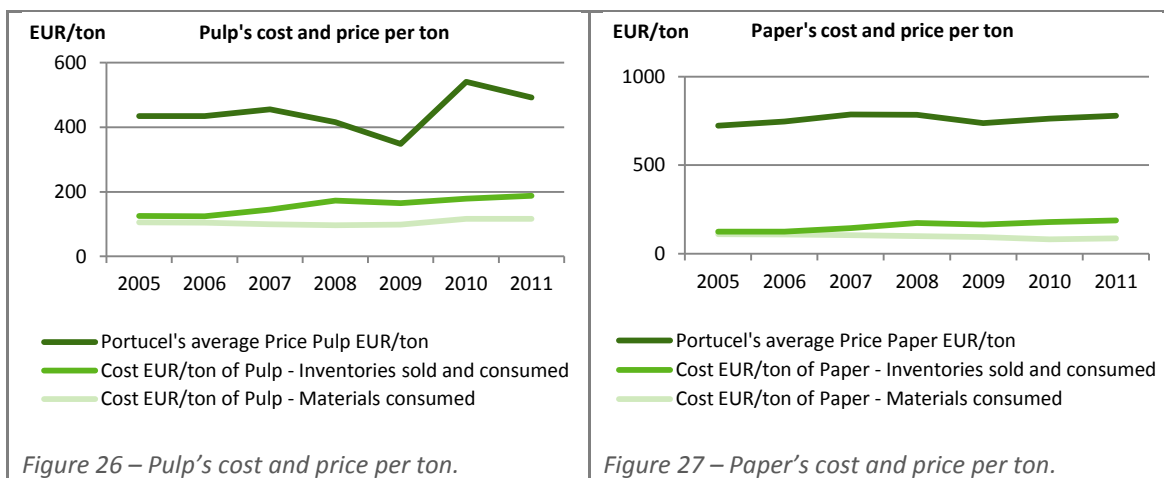
The fuels' prices have been increasing and there are no signs of stagnation. Moreover, the lack of eucalyptus production in Portugal has been forcing Portucel to import wood from other countries. The lack of supply added to the higher import prices lead Portucel to suffer significant pressures on the resources' costs.

Regarding the other operating costs – variation in production, other costs and losses and provisions – a similar procedure was followed. The three accounts present significant differences in value from one year to another and the cost per ton does not present any cyclical pattern either. As a result, an average of the historical years of the costs per unit

produced was assumed for the first forecasted period and increased at the Portuguese inflation rate towards the end of the explicit period. The estimated value for each account is a rolling average of their percentage in the total value of the other operating costs.

Table 29 is the consolidation of what was described for the variable operating costs and, although it only figures data from 2010, the whole computation gathers information of 2005.

	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Pulp % of Costs	45,5%	45,5%						
Paper % of Costs	36,9%	36,9%						
Energy % of Costs	17,6%	17,6%						
Pulp Produced ('000 tons)	1.316	1.404	1.385	1.385	1.385	1.385	1.385	1.385
Paper Produced ('000 tons)	1.540	1.551	1.568	1.568	1.568	1.568	1.568	1.568
Energy Produced ('000 GWh)	1,7	1,9	2	2	2	2	2	2
Inventories Sold and Consumed '000 EUR								
Allocated to Pulp '000 EUR	-235.337	-264.022	-264.202	-268.398	-273.025	-277.991	-283.048	-288.196
Cost EUR/ton of Pulp	-179	-188	-191	-194	-197	-201	-204	-208
Allocated to Paper '000 EUR	-190.855	-214.119	-219.556	-223.043	-226.888	-231.015	-235.218	-239.496
Cost EUR/ton of Paper	-124	-138	-140	-142	-145	-147	-150	-153
Allocated to Energy '000 EUR	-91.031	-102.127	-106.264	-110.729	-115.535	-120.663	-126.019	-131.612
Cost EUR/GWh of Energy	-53548	-53751	-54.526	-55.392	-56.347	-57.372	-58.415	-59.478
Total	**-517.223**	**-580.269**	**-590.023**	**-602.169**	**-615.449**	**-629.670**	**-644.284**	**-659.305**
Materials and Services Consumed '000 EUR								
Allocated to Pulp '000 EUR	-153.293	-163.025	-163.136	-165.727	-168.584	-171.650	-174.772	-177.952
Cost EUR/ton of Pulp	-117	-116	-118	-120	-122	-124	-126	-129
Allocated to Paper '000 EUR	-124.319	-132.211	-135.569	-137.722	-140.096	-142.644	-145.239	-147.881
Cost EUR/ton of Paper	-81	-85	-86	-88	-89	-91	-93	-94
Allocated to Energy '000 EUR	-59.296	-63.060	-65.615	-68.371	-71.339	-74.506	-77.813	-81.266
Cost EUR/GWh of Energy	-34.880	-33.190	-33.668	-34.202	-34.792	-35.425	-36.069	-36.725
Total	**-336.907**	**-358.296**	**-364.319**	**-371.819**	**-380.019**	**-388.800**	**-397.824**	**-407.099**
Other Operating Costs '000 EUR								
Allocated to Pulp '000 EUR	-9.271	-21.236	-9.705	-9.860	-10.030	-10.212	-10.398	-10.587
Cost EUR/ton of Pulp	-7	-15	-7	-7	-7	-7	-8	-8
Allocated to Paper '000 EUR	-7.518	-17.222	-9.861	-10.018	-10.191	-10.376	-10.565	-10.757
Cost EUR/ton of Paper	-5	-11	-6	-6	-7	-7	-7	-7
Allocated to Energy '000 EUR	-3.586	-8.214	-5.702	-5.941	-6.199	-6.474	-6.761	-7.062
Cost EUR/GWh of Energy	-2.109	-4.323	-2.926	-2.972	-3.023	-3.078	-3.134	-3.191
Variation in Production	-5.635	-38.753	-3.148	-3.174	-3.934	-4.945	-9.806	-9.889
Other costs and losses	-13.575	-13.530	-17.649	-17.535	-21.019	-22.372	-20.463	-17.975
Provisions	-1.165	5.611	-4.471	-5.109	-1.467	254	2.545	-542
Total	**-20.375**	**-46.672**	**-25.268**	**-25.819**	**-26.419**	**-27.062**	**-27.724**	**-28.405**

Table 29 - Portucel's historical and expected variable operating costs. Source: Portucel's Annual Reports and own calculations.

Appendix 9 – Portucel's Payroll Costs

Portucel is not planning heavy investments during the explicit period as verified in the years of 2008 and 2009. Therefore, it is assumed that the number of retirements would equal the number of new entries, keeping the number of employees unchanged.

The annual wages per employee were computed through the average number of employees and it was assumed to increase at the expected Portuguese inflation rate plus 0.5% in order to guarantee the bonus based on annual-defined objectives (see table 30 for all the computations, and notice that data since 2005 was considered for this analysis, but hidden in this table).

Payroll Costs '000 EUR	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Initial Number of Workers	2.288	2.331	2.290	2.290	2.290	2.290	2.290	2.290
Entries of new workers	43							
Exit of workers		41						
Final Number of Workers	2.331	2.290	2.290	2.290	2.290	2.290	2.290	2.290
Average Number of Workers	2.310	2.311	2.290	2.290	2.290	2.290	2.290	2.290
Average Cost per Worker	41.988	42.984	43.819	44.733	45.728	46.789	47.874	48.984
Payroll Costs '000 EUR	**-127.020**	**-133.713**	**-134.973**	**-137.704**	**-140.678**	**-143.850**	**-147.094**	**-150.411**
Wages	-96.971	-99.315	-100.344	-102.440	-104.718	-107.146	-109.631	-112.173
Social Security	-14.393	-17.159	-17.142	-17.500	-17.889	-18.304	-18.728	-19.162
Social Security (%)	*15%*	*17%*	*17%*	*17%*	*17%*	*17%*	*17%*	*17%*
Pensions and other benefits	-5.407	-3.254	-3.301	-3.354	-3.411	-3.474	-3.537	-3.601
Others costs	-10.249	-13.985	-14.186	-14.411	-14.660	-14.927	-15.198	-15.475

Table 30 – Portucel's historical and expected payroll costs. Source: Portucel's Annual Reports and own calculations.

There is a drop in 2009's annual wage per worker and this fact might be explained by the entrance of almost 130 new employees who, logically, receive lower wages and bonuses when compared with the more senior ones. This might be meaningless for this analysis considering that no entrances were assumed.

Regarding the pension funds, as the cost is recognized at the moment that the benefits are liquidated, it seems coherent to assume that both pension funds and the other costs will increase at the expected Portuguese inflation rate. The social security's percentage over the total wages was assumed to remain constant at the average of the historical years' rate.

Appendix 10 – Secil's Revenues

From Secil's annual reports it was possible to collect how much of each product was sold in each country, as well as the respective price practiced. But before starting to analyse each country separately, it is important to cover some assumptions that will be common among countries, in general.

First of all, the quantities sold will grow at the respective country's GDP growth rate. Secondly, the prices practiced by each country will grow at the respective inflation rate. However, as each country exports to others markets and there is no information regarding it, prices will also grow at the inflation rate of the country that exports, being Portugal an exception of this rule. Moreover, the number of plants of each country for each product is expected to remain equal to 2011.

Although the tables presented in this Appendix only display data since 2009, to compute the forecasted Secil's revenues it was considered and used data since 2006, the oldest annual report published on Secil's website.

Portugal
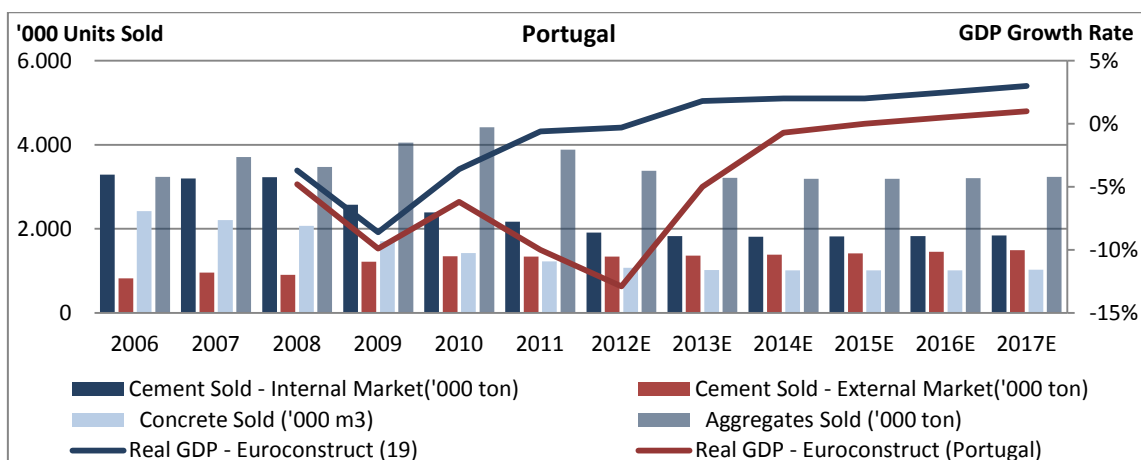
Figure 28 – Secil's historical and expected quantity sold of cement, concrete and aggregates in Portugal and the respective GDP growth rate. Source: Secil's Annual Reports, own calculations and Euroconstruct.

Portugal produces the whole portfolio of Secil's products. The cement demand has been decreasing in Portugal, but Secil is not losing its market share in the internal market. According to Euroconstruct, the Portuguese market is expected to reach its minimum in 2012, with a GDP growth rate of minus 12.9%. In 2013 and 2014, it still presents a negative growth but substantially better, expected to increase in 2016 (see figure 28 above). Prices are expected to increase at the Portuguese inflation rate.

The Portuguese external market is mainly Europe. In order to assume a closer proxy of the European construction market, the GDP growth rate expected to influence the quantity of cement sold in the external market is the rate forecasted by Euroconstruct for the 19 European countries. This rate has been presenting a negative growth, with 2009 being the year where it performed the worst reaching a negative 8.6% GDP growth rate. Since then the GDP decline has been slowing down, turning to positive in 2013 for 1.8%. From table 31 (below) it is possible to observe that the quantity sold to the external market will almost reach the quantity sold for the internal market when, in the past, it was almost in half. The prices allocated for this market are also expected to increase at the European inflation rate.

Portugal	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement and Clinker									
Number of Plants	3	3	3	3	3	3	3	3	3
Cement and Clinker Sold ('000 EUR)									
Cement Sold - Internal Market	196.000	183.000	166.492	145.014	137.764	136.799	136.799	137.483	138.858
Cement Sold - External Market	47.000	54.000	55.077	54.912	55.900	57.018	58.158	59.612	61.401
Total	243.000	237.000	221.569	199.926	193.664	193.818	194.958	197.096	200.259
Cement and Clinker Sold ('000 ton)									
Cement Sold - Internal Market	2.423	2.252	2.027	1.765	1.677	1.665	1.665	1.674	1.690
Cement Sold - External Market	1.218	1.349	1.341	1.337	1.361	1.388	1.416	1.451	1.495
Total	3.641	3.601	3.368	3.102	3.038	3.054	3.081	3.125	3.185
Cement and Clinker - EUR/ton									
Internal Market	81	81	82	83	85	86	88	89	91
External Market	39	40	41	42	43	44	44	45	46
Concrete									
Number of Plants	48	46	46	46	46	46	46	46	46
Concrete Sold ('000 EUR)	99.398	83.211	75.705	66.889	64.554	65.207	66.393	67.939	69.866
Concrete Sold ('000 m3)	1.659	1.365	1.229	1.070	1.017	1.009	1.009	1.014	1.025
Concrete Growth	*-15,9%*	*-17,7%*							
Concrete - EUR/m3	60	61	62	63	64	65	66	67	68
Aggregates									
Number of Plants	8	8	8	8	8	8	8	8	8
Aggregates Sold ('000 EUR)	21.744	22.094	20.101	17.760	17.140	17.314	17.629	18.039	18.551
Aggregates Sold ('000 ton)	3.957	4.316	3.884	3.383	3.214	3.192	3.192	3.208	3.240
Aggregates Growth	*17,4%*	*9,1%*							
Aggregates - EUR/ton	5	5	5	5	5	5	6	6	6
Precast Concrete; Mortars and Binders; Ordinary Refuse and Slag									
Sold ('000 EUR)	33.052	31.648	28.483	24.809	23.568	23.403	23.403	23.520	23.756
Sold ('000 ton)	695	666							
Madeira Autonomous Region									
Sold ('000 EUR)	19.641	19.994	22.430	19.537	18.560	18.430	18.430	18.522	18.707

Table 31 – Secil's historical and expected sales of Secil in Portugal. Source: Secil's Annual Reports, own calculations, Euroconstruct and IMF.

Regarding the concrete and aggregates, as there is no distinction between what is sold internal or externally, the Portuguese assumptions will be considered. It will be assumed that their quantity sold is expected to increase at the Portuguese GDP growth rate forecasted by Euroconstruct and the prices will grow at the Portuguese inflation rate. The other products' revenues – precast concrete, mortars and binders, ordinary refuse and slag – and Madeira Autonomous Region's revenues are expected to increase at the GDP growth rate disclosed by Euroconstruct to the Portuguese market (see table 31 for the Portuguese revenues breakdown).

Tunisia
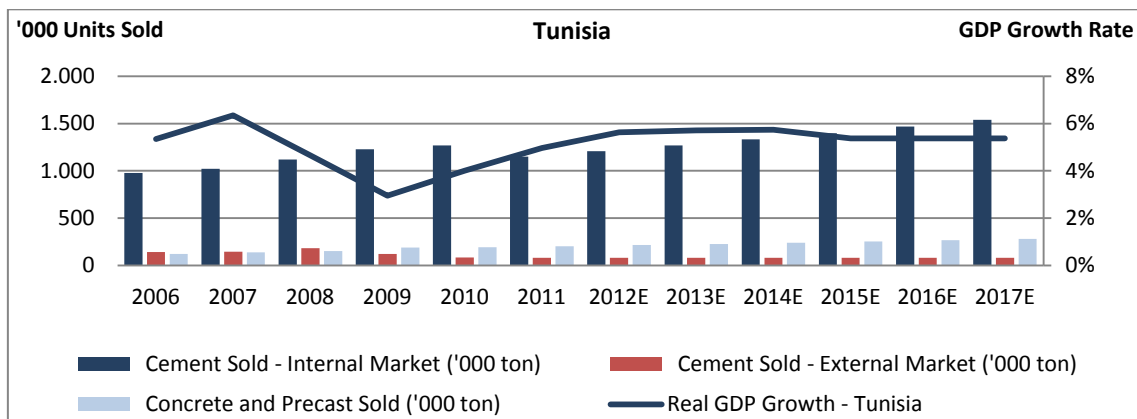
Figure 29 – Secil's historical and expected quantity sold of cement and concrete in Tunisia and the respective GDP growth rate. Source: Secil's Annual Reports, own calculations and IMF.

The Tunisian plant of Secil is responsible for the production of cement, clinker, concrete and precast concrete. The Tunisian market demand for cement and its derivatives is the main contributor for this plant's good performance. The Tunisian GDP growth rate presents an upward trend in the near future, translating the positive growth on quantities sold (see figure 29 above).

As previously referred, the Tunisian government regulates the prices practiced by the companies and still imposes restrictions on exportation. Therefore, it was assumed that the prices practiced by Secil in Tunisia would remain constant and equal to 2011 in all products. The quantities sold were assumed to continue to grow according to the GDP growth rate of Tunisia, as verified in past years, with the exception of the quantity sold to the external market which will remain constant due to the government's regulation (see table 32 on the following page).

Tunisia	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement and Clinker									
Number of Plants	1	1	1	1	1	1	1	1	1
Cement and Clinker Sold ('000 EUR)									
Cement Sold - Internal Market	51.949	56.143	50.916	53.448	56.105	58.895	61.823	64.897	68.123
Cement Sold - External Market	6.933	4.494	4.269	4.269	4.269	4.269	4.269	4.269	4.269
Total	58.882	60.637	55.185	57.717	60.374	63.164	66.092	69.166	72.393
Cement and Clinker Sold ('000 ton)									
Cement Sold - Internal Market ('000 ton)	1.228	1.269	1.151	1.208	1.268	1.331	1.397	1.467	1.540
Cement Sold - External Market ('000 ton)	124	85	81	81	81	81	81	81	81
Total	1.352	1.354	1.232	1.289	1.349	1.412	1.478	1.548	1.621
Cement and Clinker - EUR/ton									
Internal Market	42	44	44	44	44	44	44	44	44
External Market	56	53	53	53	53	53	53	53	53
Concrete and Precast Concrete									
Number of Plants	5	7	7	7	7	7	7	7	7
Concrete and Precast Sold ('000 ton)	191	195	205	216	229	242	255	268	283
Concrete and Precast Sold ('000 EUR)	7.947	8.192	8.900	9.401	9.937	10.508	11.072	11.666	12.292
Concrete and Precast - EUR/ton	42	42	43	43	43	43	43	43	43

Table 32 - Secil's historical and expected sales of Secil in Tunisia. Source: Secil's Annual Reports, own calculations and IMF.

Lebanon
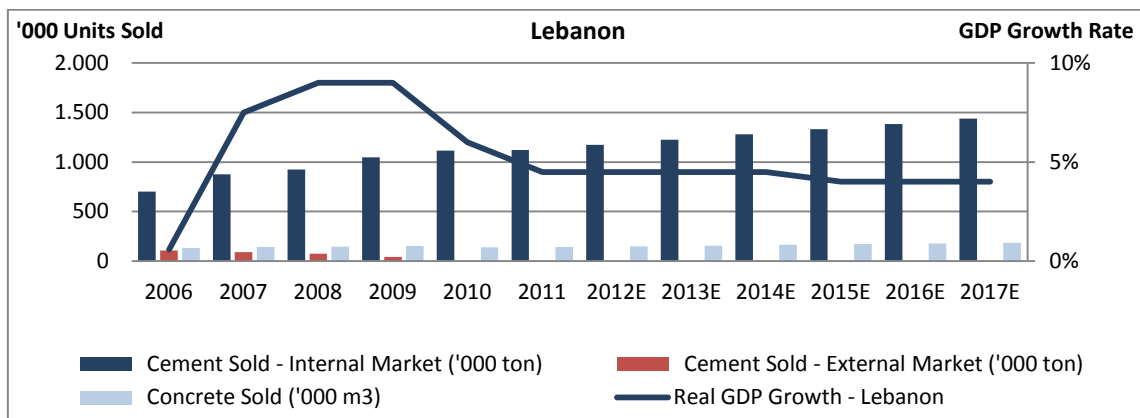
Figure 30 – Secil's historical and expected quantity sold of cement and concrete in Lebanon and the respective GDP growth rate. Source: Secil's Annual Reports, own calculations and IMF.

From the five different countries where Secil operates, Lebanon is the only country where the government and the private sector are demanding construction works. The domestic market's high demand for cement might explain the 95% reduction verified in the foreign market in 2010. The Lebanese GDP growth rate presents a very stable pattern for the future – around 4% and 4.5%, however, much lower from what was observed in the past years (see figure 30 above). The quantities of both cement and concrete are forecasted to grow at this rate and the

prices are expected to be influenced by the expected Lebanese inflation rate (see table 33 below).

Although the cement sales are brokendown into internal and external quantities sold and revenues, there is no information regarding the countries that might purchase considerable quantities to Secil in Lebanon in order to assume a better assumption than the Lebanese GDP .

Lebanon	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement									
Number of Plants	1	1	1	1	1	1	1	1	1
Cement and Clinker Sold ('000 EUR)									
Cement Sold - Internal Market	65.070	72.411	75.273	80.415	85.886	91.721	97.502	103.649	110.182
Cement Sold - External Market	1.886	78	84	88	92	96	100	104	108
Total	66.956	72.489	75.357	80.503	85.978	91.817	97.602	103.753	110.290
Cement and Clinker Sold ('000 ton)									
Cement Sold - Internal Market ('000 ton)	1.048	1.116	1.122	1.172	1.225	1.280	1.331	1.384	1.440
Cement Sold - External Market ('000 ton)	40	2	2	2	2	2	2	3	3
Total	1.088	1.118	1.124	1.174	1.227	1.282	1.334	1.387	1.442
Cement and Clinker - EUR/ton									
Internal Market	62	65	67	69	70	72	73	75	77
External Market	47	39	40	40	40	40	40	40	40
Concrete									
Number of Plants	1	1	1	1	1	1	1	1	1
Concrete Sold ('000 EUR)	7.671	7.649	8.268	8.833	9.433	10.074	10.709	11.384	12.102
Concrete Sold ('000 m3)	151	137	143	150	156	163	170	177	184
Concrete - EUR/m3	51	56	58	59	60	62	63	64	66

Table 33 - Secil's historical and expected sales of Secil in Lebanon. Source: Secil's Annual Reports, own calculations and IMF.

Angola
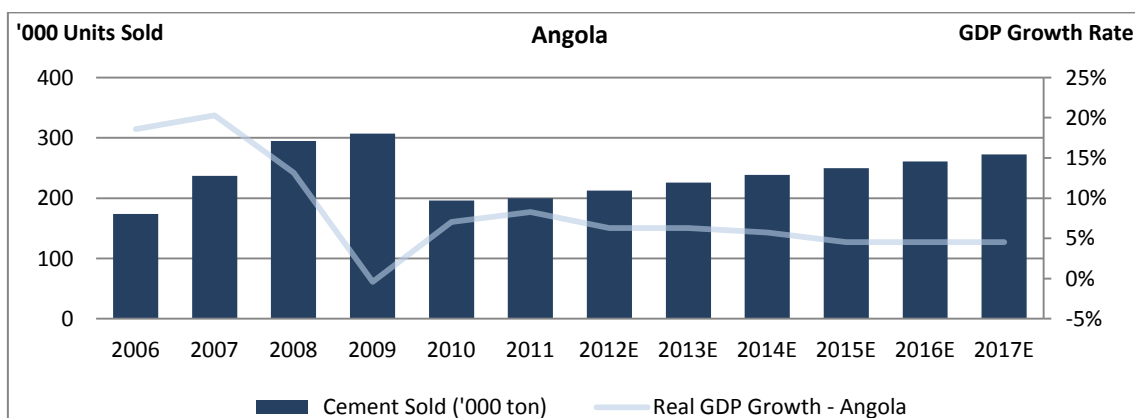
Figure 31 – Secil's historical and expected quantity sold of cement in Angola and the respective GDP growth rate. Source: Secil's Annual Reports, own calculations and IMF.

Secil Angola suffered a significant decline on its 2010's revenues, a year after its only negative GDP growth rate. Now, it is foreseen that the Angolan GDP growth rate will slow down in relation to the previous years, but still at a considerable high level around 5% (see figure 31 on the previous page). Although Secil decided to compete with lower prices due to the Chinese competition entering in the Angolan market at lower prices, the prices are still expected to grow at the Angolan inflation rate (see table 34 below).

Angola	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement									
Number of Plants	1	1	1	1	1	1	1	1	1
Cement Sold ('000 EUR)	48.594	27.763	30.584	35.318	40.335	45.403	50.297	55.720	61.727
Cement Sold ('000 ton)	307	196	200	212	226	239	250	261	273
Cement - EUR/ton	158	142	153	166	179	190	202	214	226

Table 34 - Secil's historical and expected sales of Secil in Angola. Source: Secil's Annual Reports, own calculations and IMF.
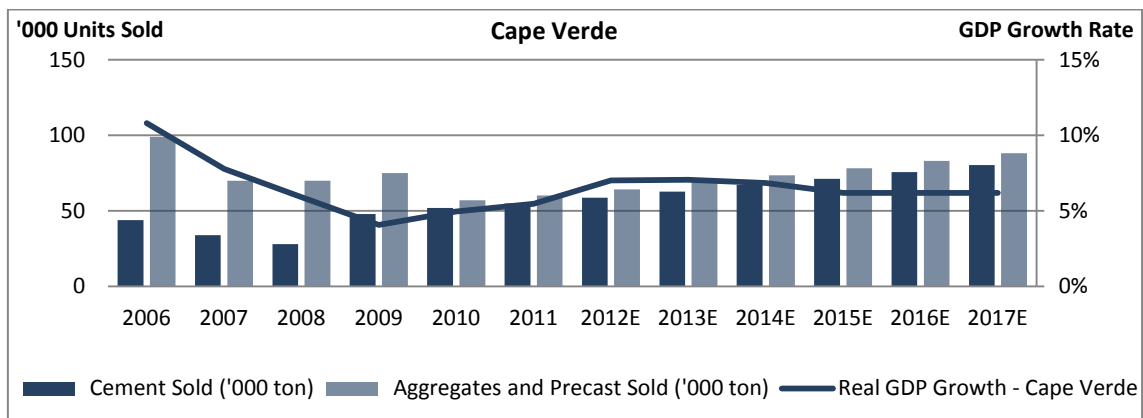
Cape Verde

Figure 32 – Secil's historical and expected quantity sold of cement and aggregates in Cape Verde and the respective GDP growth rate. Source: Secil's Annual Reports, own calculations and IMF.

Cape Verde is the country contributing the least to Secil's total revenues (around 1%). Nevertheless, according to its historical and expected GDP growth rate, the country still presents stable perspectives – around 6% (see figure 32 above). This positive trend allows Secil to gain market share and increase its quantities sold of both cement and aggregates. The private sector has been delaying the projects, but they are expected to continue in the near future which, added to investments in public works, forecasts the good performance for Secil in Cape Verde. The prices will grow at the expected inflation rate for the country (see table 35 on the following page).

Cape Verde	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement									
Number of Plants	1	1	1	1	1	1	1	1	1
Cement Sold ('000 EUR)	4.497	4.772	5.134	5.603	6.119	6.669	7.224	7.825	8.476
Cement Sold ('000 ton)	48	52	55	59	63	67	71	76	80
Cement - EUR/ton	94	92	94	95	97	99	101	103	105
Aggregates and Precast Concrete									
Number of Plants	2	2	2	2	2	2	2	2	2
Aggregates and Precast Sold ('000 ton)	75	57	60	64	69	74	78	83	88
Concrete and Precast Sold ('000 EUR)	1.007	680	732	798	872	950	1.029	1.115	1.208
Aggregates and Precast - EUR/ton	13	12	12	12	13	13	13	13	14

Table 35 – Secil's historical and expected sales of Secil in Cape Verde. Source: Secil's Annual Reports, own calculations and IMF.

Regarding the other revenues that do not belong to any of the referred countries, due to lack of information regarding the countries and products involved and the quantities and prices practiced, it was assumed that they would grow at the GDP growth rate forecasted by Euroconstruct to the 19 European countries.

All the revenues' computation described above include intra-group sales. However, any unrealised gains arising from transactions between groups are eliminated in preparing the consolidated financial statements therefore, they must be excluded. In order to extract the intra-group sales from the total sales described above, for each country, it was assumed that the 2011's percentage of intra-group sales in the total revenues of each country will remain constant in the future, leading to the consolidated revenues displayed in table 36, below.

Secil's Consolidated Revenues									
Amounts in '000 EUR	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Revenues	**572.231**	**535.819**	**506.903**	**488.126**	**493.719**	**509.955**	**527.707**	**548.111**	**571.319**
Portugal	348.231	328.089	302.109	269.816	260.436	260.998	263.165	266.695	271.636
Tunisia	67.305	69.311	61.097	63.985	67.030	70.234	73.563	77.060	80.733
Angola	48.504	27.763	30.419	35.318	40.335	45.403	50.297	55.720	61.727
Lebanon	71.591	77.187	80.766	86.204	92.066	98.319	104.515	111.101	118.102
Cape Verde	5.357	5.373	5.824	6.193	6.764	7.371	7.985	8.649	9.369
Others	31.243	28.095	26.689	26.609	27.088	27.630	28.182	28.887	29.754

Table 36 – Secil's historical and expected consolidated revenues by country. Source: Secil's annual Reports and own calculations.

Appendix 11 – Secil's Operating Costs

Secil's variable costs are constituted by the cost of sales and materials consumed, the external supplies and services, impairment of inventories, receivables and non and depreciable assets, provisions and other costs and losses. The variable costs were obtained by subtracting the revenues to the EBITDA of each product per country. Given this, by diving each product variable cost per quantity of units sold, it is possible to get a proxy of the cost per ton of product sold. Unfortunatelly, Secil does not disclose the quantities produced, otherwise those would be a better proxy than the quantities sold.

The cost per ton of product is expected to increase at the inflation rate of the country where the product is produced which, multiplied by the quantity sold, yields the total variable operating costs of the respective product and country. Please see the following tables for Portugal (table 37) and Tunisia, Lebanon, Angola and Cape Verde's (table 38) variable operating costs by product. Notice that although they only display the year of 2009, data since 2006 was considered in this analysis.

Portugal	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement and Clinker									
Cement and Clinker Sold ('000 ton)	3.641	3.601	3.368	3.102	3.038	3.054	3.081	3.125	3.185
Cost EUR/'000 ton of Cement	43	44	45	45	46	47	48	49	49
Cement Operating Costs ('000 EUR)	155.000	159.000	150.317	140.463	139.740	142.873	146.795	151.586	157.320
Concrete									
Concrete Sold ('000 m3)	1.659	1.365	1.229	1.070	1.017	1.009	1.009	1.014	1.025
Cost EUR/'000 ton of Cement	56	59	59	60	61	62	63	65	66
Concrete Operating Costs ('000 EUR)	92.613	80.278	73.036	64.531	62.278	62.908	64.053	65.544	67.404
Aggregates									
Aggregates Sold ('000 ton)	3.957	4.316	3.884	3.383	3.214	3.192	3.192	3.208	3.240
Cost EUR/'000 ton of Cement	5	4	5	5	5	5	5	5	5
Aggregate Operating Costs ('000 EUR)	18.061	19.334	17.590	15.542	14.999	15.151	15.426	15.785	16.233
Precast Concrete; Mortars and Binders; Ordinary Refuse and Slag									
Sold ('000 EUR)	33.052	31.648	28.483	24.809	23.568	23.403	23.403	23.520	23.756
Operating Costs ('000 EUR)	29.680	29.103	25.938	22.264	21.023	20.858	20.858	20.975	21.211
EBITDA	3.372	2.545							
Madeira Autonomous Region									
Sold Madeira ('000 EUR)	19.641	19.994	22.430	19.537	18.560	18.430	18.430	18.522	18.707
Madeira Operating Costs ('000 EUR)	17974	19585	20776	17883	16906	16776	16776	16868	17053
EBITDA	1667	409							

Table 37 – Secil's historical and expected operating costs of Portugal. Source: Secil's Annual Reports and own calculations.

Portugal's operating costs of the precast concrete, mortars and binders, ordinary refuse, slag and Madeira Autonomous Region, due to the lack of information available, were forecasted by assuming that the average of the three last years of the EBITDA would remain constant during the explicit period which, subtracted to the revenues, yields the variable operating costs (see table 37 on the previous page).

Tunisia	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cement									
Cement and Clinker Sold ('000 ton)	1.352	1.354	1.232	1.289	1.349	1.412	1.478	1.548	1.621
Cost EUR/'000 ton of Cement	35	35	36	36	37	38	39	40	42
Cement Operating Costs ('000 EUR)	46.922	46.977	44.226	46.281	49.939	53.842	58.000	62.488	67.330
Concrete and Precast Concrete									
Concrete and Precast Sold ('000 ton)	191	195	205	216	229	242	255	268	283
Cost EUR/'000 ton of Cement	34	36	37	38	40	41	42	43	44
Concrete Operating Costs ('000 EUR)	6.479	6.992	7.597	8.288	9.033	9.838	10.667	11.566	12.540
Lebanon	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Cement									
Cement and Clinker Sold ('000 ton)	1.088	1.118	1.124	1.174	1.227	1.282	1.334	1.387	1.442
Cost EUR/'000 ton of Cement	36	38	40	40	41	42	43	44	45
Concrete Operating Costs ('000 EUR)	38.829	42.795	44.490	47.529	50.762	54.211	57.628	61.261	65.122
Concrete									
Concrete Sold ('000 m3)	151	137	143	150	156	163	170	177	184
Cost EUR/'000 ton of Cement	46	54	48	49	50	51	52	54	55
Concrete Operating Costs ('000 EUR)	7.021	7.452	6.885	7.356	7.856	8.390	8.919	9.481	10.079
Angola	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Cement									
Cement Sold ('000 ton)	307	196	200	212	226	239	250	261	273
Cost EUR/'000 ton of Cement	129	136	149	162	174	185	196	208	221
Cement Operating Costs ('000 EUR)	39.679	26.597	29.798	34.411	39.299	44.237	49.005	54.289	60.141
Cape Verde	**2009**	**2010**	**2011**	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Cement									
Cement Sold ('000 ton)	48	52	55	59	63	67	71	76	80
Cost EUR/'000 ton of Cement	92	90	92	94	96	98	100	102	104
Cement Operating Costs ('000 EUR)	4.429	4.694	5.050	5.512	6.019	6.560	7.106	7.697	8.338
Aggregates and Precast Concrete									
Aggregates and Precast Sold ('000 ton)	75	57	60	64	69	74	78	83	88
Cost EUR/'000 ton of Cement	10	9	9	9	9	10	10	10	10
Aggregate Operating Costs ('000 EUR)	726	502	540	589	644	702	760	823	892

Table 38 – Secil's historical and expected variable operating costs of Tunisia, Lebanon, Angola and Cape Verde. Source: Secil's Annual Reports and own calculations.

The variable costs described above also include the costs incurred when each country produces and sells products internally. As previously referred in Secil's revenues (Appendix 10),

the intra-group transactions are eliminated in preparing the financial statements therefore, they must be excluded. In order to extract the intra-group variable costs from the total costs described above, for each country, it was assumed that the total intra-group costs would be given by the difference between the sum of the costs presented in each country's partial income statement and the total costs presented in the consolidated income statement. The total intra-group operational costs multiplied by the weight that each country has on the Secil's total revenues would output the intra-group costs allocated to each country. The 2006-2011's average of each country's intra-group operating costs will remain constant in the future, leading to the total consolidated operating costs displayed in table 39.

Consolidated Operating Costs ('000EUR)	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Portugal	272.075	271.845	275.387	227.373	221.637	225.258	230.599	237.450	245.912
Tunisia	45.428	46.479	49.341	48.867	53.270	57.978	62.966	68.351	74.168
Angola	33.933	23.597	28.563	31.164	36.052	40.989	45.758	51.041	56.894
Lebanon	37.369	41.906	48.094	49.679	53.412	57.395	61.341	65.536	69.995
Cape Verde	4.520	4.615	5.353	5.620	6.182	6.781	7.385	8.040	8.749
Others	32.119	32.439	34.947	33.830	34.649	35.325	36.088	36.876	37.691
Total	**425.443**	**420.881**	**441.685**	**396.534**	**405.204**	**423.726**	**444.138**	**467.295**	**493.409**

Table 39 – Secil's historical and forecasted consolidated operating costs. Source: Secil's Annual Reports and own calculations.

Notice that the variable costs decribed in tables 37, 38 and 39 also include the costs incurred with the personnel. And, in order to extract the variable costs' amount allocated to each costs' account, it was considered that the 2011's percentage of each account over the total costs minus the payroll costs, would yield each account of variable costs. The payroll costs will be analyzed later on. Please see table 40 for the consolidated variable costs of Secil.

Consolidated Variable Operating Costs ('000EUR)	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Cost of sales and materials	-142.181	-157.782	-137.591	-140.971	-148.507	-156.773	-166.230	-176.969
External supplies and services	-182.787	-182.215	-158.898	-162.801	-171.505	-181.051	-191.972	-204.375
Impairment of inventories	-774	-690	-601	-616	-649	-685	-727	-773
Impairment of accounts receivable	-2.834	-3.224	-2.811	-2.881	-3.035	-3.203	-3.397	-3.616
Impairment of non and depreciable	0	-249	-217	-223	-235	-248	-262	-279
Provisions	-141	-3.417	-2.980	-3.053	-3.216	-3.395	-3.600	-3.833
Other costs and losses	-9.563	-12.623	-11.007	-11.278	-11.881	-12.542	-13.299	-14.158
Total Variable Operating Costs	**-338.281**	**-360.200**	**-314.107**	**-321.822**	**-339.027**	**-357.898**	**-379.486**	**-404.004**

Table 40 – Secil's historical and forecasted consolidated variable operating costs. Source: Secil's Annual Reports and own calculations.

Appendix 12 – Secil's Payroll Costs

Secil's annual reports disclose how many workers are employeed in each country, however, it does not present information regarding the payroll costs per country. Therefore, the number of workers was summed and the consolidated payroll costs were analyzed.

As Secil will maintain its investments on the average level of the historical years, it is assumed that the number of retirements would equal the number of new entries, keeping the number of employees unchanged.

The annual wages per employee were computed through the average number of employees and it was assumed to increase at the expected Portuguese inflation rate since the Portuguese employees represent more than half of the total employees (see table 41 for all the computations, and notice that data since 2006 was considered for this analysis, but hidden in this table).

Payroll Costs	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Portugal	1.409	1.374							
Tunisia	425	415							
Angola	302	286							
Lebanon	495	516							
Cape Verde	36	36							
Initial Number of Workers	2.663	2.667	2.627	2.589	2.569	2.559	2.559	2.559	2.559
Entries of new workers	4					0	0	0	0
Exit of workers		-40	-38	-20	-10				
Final Number of Workers	2.667	2.627	2.589	2.569	2.559	2.559	2.559	2.559	2.559
Average Number of Workers	2.665	2.647	2.608	2.579	2.564	2.559	2.559	2.559	2.559
Average Cost per Worker	22.182	22.534	22.916	23.247	23.616	24.023	24.460	24.905	25.358
Payroll Costs '000 EUR	**-80.763**	**-82.600**	**-81.485**	**-82.427**	**-83.382**	**-84.699**	**-86.240**	**-87.808**	**-89.406**
Employees' remuneration	-59.160	-59.196	-59.331	-59.953	-60.551	-61.475	-62.593	-63.732	-64.891
Post Employee Benefits	-1.929	-3.093	-2.088	-2.118	-2.152	-2.189	-2.229	-2.269	-2.310
other personnel cost	-19.673	-20.311	-20.066	-20.356	-20.679	-21.035	-21.418	-21.808	-22.204

Table 41 – Secil's historical and expected total payroll costs. Source: Secil's Annual Reports and own calculations.

Regarding the post employee benefits, as the cost is recognized by the moment that the benefits are liquidated, it seems coherent to assume that both the post employee benefits and the other personnel costs will increase at the expected Portuguese inflation rate.

Appendix 13 – Portucel's Investment Grants

In 2006, Portucel signed four investment contracts with AICEP[15] with the objective of funding a total investment plan of EUR 914,6 million. The financial grants of EUR 102.775.376 have been recognized in the Other Receivables (Receivables Account) and in the Deferred Income (Payables Account). In 2011, out of the EUR 102.775.376, EUR 32.877.046 are yet to be received. It was not found any pattern in the received grants and, despite the lack of relevant investments in the near future, it is assumed that half of it will be received in 2012 and the other half in 2013. The other receivables decrease by the time the grants are recognized. The total amount in respect to the EUR 102 million of financial grants had been received and no refunds are expected (see table 42).

Portucel's Receivable Grants										
Amount in '000 EUR	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E
Financial Grants - AICEP										
Initial	0	0	71.343	15.841	6.891	38.200	32.877	16.439	0	0
Received	0	0	-58.019	-6.557	0	-5.323	-16.439	-16.439	0	0
Refund	71.343	71.343	2.516	-2.393	31.309	0	0	0	0	0
Final	71.343	71.343	15.841	6.891	38.200	32.877	16.439	0	0	0
Cumulative										
Received	0	0	-58.019	-64.576	-64.576	-69.898	-86.337	-102.775	0	0
Refund	71.343	71.343	73.859	71.467	102.038.801	0	0	0	0	0
To be received	102.775	102.775	44.757	38.200	38.200	32.877	16.439	0	0	0
To be refund	31.432	31.432	28.916	31.309	0	0	0	0	0	0

Table 42 – Portucel's receivable grants. Source: Portucel's Annual Reports and own calculations.

The payable grants are registered in the deferred income as the sum between the amount of grant used and the refunded amount. As the amount to be received is used, it must be recognized in the payable side. Although Portucel already received the total amount of the financial grants, so far it just used EUR 54.394.999. It will be assumed that the amount received but not used will be recognized equally among the forecasted periods (see table 43).

Portucel's Payable Grants												
Amount in '000 EUR	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Financial Grants - AICEP												
Initial	6.283	3.628	55.781	48.039	40.637	60.695	54.103	45.086	36.069	27.052	18.034	9.017
Utilization	-3.103	-18.793	-10.258	-4.461	-11.188	-6.591	-9.017	-9.017	-9.017	-9.017	-9.017	-9.017
Refund	448	70.946	2.516	-2.940	31.245	0	0	0	0	0	0	0
Final	3.628	55.781	48.039	40.637	60.695	54.103	45.086	36.069	27.052	18.034	9.017	0

Table 43 – Portucel's payable grants. Portucel's Annual Reports and own calculations.

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[15] Agência para o Investimento e Comércio Externo de Portugal.

Appendix 14 – Net Working Capital

In this appendix, attention will be given to the formula used to calculate the number of days outstanding for each account and common to both companies. Then, reference will be given to appendices 14A and 14B, for Portucel and Secil respectively. Both appendices follow the same guidelines and start with the forecasted periods computed with the historical days outstanding. Since in Portucel's case any account presents a cyclical pattern, an average of the historical days outstanding will be assumed from 2012 onward for both Portucel and Secil. Finally, a consolidation of each company's forecasted NWC will be presented.

The number of receivable days outstanding was computed according to:

$$[26] \quad Receivable\ Days\ Outstanding = \frac{Receibles\ (excluding\ Grants)*365\ days}{Revenues}$$

The number of days in which the inventory remains unsold in the company is computed by:

$$[27] \quad Inventory\ Days\ Outstanding = \frac{Inventory*365\ days}{Cost\ of\ Inventories\ Sold\ and\ Consumed}$$

The number of Cash and Cash Equivalents Days Outstanding was computed according to:

$$[28] \quad Cash\ Days\ Outstanding = \frac{Cash\ and\ Cash\ Equivalents*365\ days}{Revenues}$$

The number of payable days outstanding was calculated through the following formula:

$$[29] \quad Payable\ Days\ Outstanding = \frac{Payables\ (excluding\ Grants)*365}{Inventories\ sold\ +Materials\ and\ services\ consumed}$$

The State and Other Public Entities (SOPE) is disaggregated into assets and liabilities. The assets side was considered to have a relation with the revenues and the liabilities with the Inventories sold and consumed and the Materials and services consumed. Given this, the days outstanding were calculated according with the respective relation.

Appendix 14A – Portucel's Net Working Capital

In this appendix are displayed the main tables regarding the historical accounts of Portucel, brokendown into the sub-accounts, excluding the respective grants when necessary, and the respective days outstanding calculated through the formulas presented in the previous appendix. These tables were necessary to compute the average days outstanding needed to calculate the forecasted period.

As Portucel records the grants into the Other Receivables' account and those grants are not of the operational core, they were excluded from the calculation of the receivable days outstanding.

Portucel's Accounts Receivables							
Amounts in '000 EUR	2005	2006	2007	2008	2009	2010	2011
Trade Debtors	210.634	225.416	225.104	168.852	147.747	164.102	204.281
Trade Debtors - related companies	1.474	331	0	0	2	0	0
Other Receivables	3.051	3.669	75.921	16.921	17.611	45.451	36.036
Investment Grants Receivables (AICEP)	0	2.616	71.343	15.841	6.891	38.200	32.877
Derivative Financial Instruments	5.172	15.790	14.068	9.998	0	240	0
Accrued Income	2.426	2.162	1.687	1.535	300	1.752	751
Deferred Costs	3.741	2.173	1.683	2.246	2.531	1.294	1.189
Receivables	226.498	249.541	318.463	199.553	168.191	212.840	242.257
Trade Receivables (excluding Grants)	226.498	246.925	247.120	183.712	161.299	174.640	209.380
Receivable Days Outstanding	80	83	79	59	54	46	51
Average Receivable Days Outstanding							65

Table 44 – Portucel's historical receivables breakdown, adjusted for grants. Source: Portucel's Annual Reports and own calculations.

Portucel's Inventories							
Amounts in '000 EUR	2005	2006	2007	2008	2009	2010	2011
Raw materials	89.257	76.512	95.466	158.094	78.335	84.293	106.030
Work in Progress	13.679	10.012	11.782	12.693	17.769	22.409	74.290
Byproducts and waste	312	467	200	927	2.034	1.241	7.040
Finished and intermediate products	26.954	29.713	31.765	66.018	45.412	63.525	1.330
Goods for resale	222	184	1.753	1.667	1.657	121	0
Advances to inventories suppliers	687	668	869	919	2.062	1.311	0
Inventories	131.113	117.556	141.835	240.318	147.269	172.900	188.691
Inventory Days Outstanding	136	120	123	174	111	122	119
Average Inventory Days Outstanding							129

Table 45 – Portucel's historical inventories breakdown. Source: Portucel's Annual Reports and own calculations.

The grants to be paid are registered into the Deferred Income's account. For being spent into investments rather than operations, they must be excluded (see table 46 below).

Portucel's Accounts Payable							
Amounts in '000 EUR	2005	2006	2007	2008	2009	2010	2011
Trade Creditors	122.548	123.523	139.398	123.256	120.890	119.183	143.591
Fixed Assets Suppliers	4.200	9.420	5.585	19.218	53.277	38.108	32.846
Fixed Assets Suppliers - Financial Leases	0	0	841	761	597	2.116	4.584
Trade Creditors related companies	2.441	2.850	4.343	699	526	143	1.453
Derivative Financial Instruments	2.448	1.422	285	44	3.360	190	4.448
Other Creditors (CO2 emission licenses)	7.091	1.739	16	3.735	5.160	6.316	4.433
Commissions for paper sales	0	1.434	2.142	2.269	1.920	404	68
Other Creditors	5.982	7.705	1.318	545	1.197	2.582	1.865
Accrued Costs	25.347	35.804	50.170	50.136	43.403	33.857	36.994
Deferred Income	12.407	3.963	55.784	48.039	42.199	61.943	54.611
Investment Grants (AICEP)	12.407	3.963	55.784	48.039	40.637	60.695	54.103
Payables	182.464	187.859	259.882	248.702	272.530	264.839	284.893
Trade Payables (excluding Grants)	170.057	183.896	204.099	200.663	231.893	204.145	230.790
Payable Days Outstading	96	102	105	93	109	87	90
Average Payable Days Outstanding							98

Tables 46 – Portucel's historical payables breakdown, adjusted for grants. Source: Portucel Annual Reports and own calculations.

After the historical accounts presented and the respective average days outstanding calculated, the forecasted receivables and payables' accounts are computed and displayed in the following tables. The grants calculated were previously explained in the Appendix 13.

Portucel's Accounts Receivables						
Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
Investment Grants Receivables (AICEP)	16.439	0	0	0	0	0
Trade Receivables	284.342	257.964	265.975	269.565	267.274	270.902
Trade Receivables (excluding Grants)	267.903	257.964	265.975	269.565	267.274	270.902

Table 47 – Portucel's expected receivables adjusted of grants. Source: own calculations.

Portucel's Accounts Payable						
Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
Investment Grants (AICEP)	45.086	36.069	27.052	18.034	9.017	0
Payables	300.125	296.358	293.081	290.211	287.511	284.986
Trade Payables (excluding Grants)	255.039	260.289	266.029	272.177	278.494	284.986

Table 48 – Portucel's expected payables adjusted of grants. Source: own calculations.

Table 49 (on the following page) presents the forecasted net working capital and the respective investment need. It was computed assuming that the average days outstanding will remain in the future, given the inexistence of a cyclical pattern in Portucel's accounts.

Portucel's Net Working Capital						
Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
ASSETS						
Operating Cash	72.540	69.849	72.018	72.990	72.370	73.352
Trade Receivables (excluding Grants)	267.903	257.964	265.975	269.565	267.274	270.902
Inventories	209.096	213.401	218.107	223.147	228.326	233.649
SOPE	51.242	49.088	52.944	54.655	52.971	51.095
Total Assets	600.782	590.301	609.044	620.356	620.940	628.997
LIABILITIES						
Trade Payables (excluding Grants)	255.039	260.289	266.029	272.177	278.494	284.986
SOPE	65.915	70.917	74.108	69.891	74.345	76.009
Total Liabilities	320.954	331.207	340.137	342.068	352.839	360.995
Net Working Capital	279.828	259.095	268.907	278.288	268.101	268.002
Investment in Net Working Capital	66.152	-20.733	9.813	9.381	-10.187	-99

Table 49 – Portucel's expected Net Working Capital and Investment in Net Working Capital. Source: own calculations.

Appendix 14B – Secil's Net Working Capital

In this Appendix are displayed the main tables regarding the historical accounts of Secil – receivables, inventories and payables, brokendown into the sub-accounts and the respective days outstanding calculated through the formulas presented in Appendix 14, necessary to compute the average days outstanding needed to estimate the forecasted period.

Secil's Accounts Receivables						
Amounts in '000 EUR	2006	2007	2008	2009	2010	2011
Trade Debtors	73.536	84.550	81.366	82.016	75.852	72.089
Trade Debtors - related companies	4.007	48	15	20	28	45
Other Receivables	22.576	16.921	8.574	7.901	5.223	5.879
Accrued Income	294	1.253	1.319	790	1.244	1.156
Receivables	**100.413**	**102.772**	**91.274**	**90.726**	**82.348**	**79.170**
Receivable Days Outstanding	78	66	56	58	56	57
Average Receivable Days Outstanding						53

Table 50 – Secil's historical receivables breakdown. Source: Secil's Annual Reports and own calculations.

Secil's Inventories						
Amounts in '000 EUR	2006	2007	2008	2009	2010	2011
Raw materials	36.661	47.919	63.325	54.861	68.757	74.004
Work in Progress	429	361	553	666	540	592
Finished and intermediate products	12.233	15.791	24.358	18.839	19.456	22.157
Goods for resale	4.338	5.727	7.072	6.052	11.627	4.970
Advances to inventories suppliers	7	5	0	10	7	13
Inventories	**53.669**	**69.803**	**95.308**	**80.427**	**100.388**	**101.737**
Inventory Days Outstanding	167	166	207	197	258	235
Average Inventory Days Outstanding						205

Table 51 – Secil's historical inventories breakdown. Source: Secil's Annual Reports and own calculations.

Secil's Accounts Payable						
Amounts in '000 EUR	2006	2007	2008	2009	2010	2011
Trade Creditors	36.615	43.417	37.058	37.150	37.998	48.890
Trade Creditors related companies	2.569	1.321	2.522	390	876	3.645
Fixed Assets Suppliers	5.352	7.294	6.323	4.303	7.462	12.061
Other payables related companies	2.250	2.600	1.001	1.361	1.372	3.200
Other Creditors (CO2 emission licences)	16.654	53	39.647	0	0	0
Other Creditors	4.147	9.380	9.208	4.692	5.659	4.741
Accrued Costs	13.835	19.762	20.895	22.089	22.586	22.605
Deferred Income	9.387	8.032	6.515	55	120	121
Payables	**41.484**	**47.383**	**123.169**	**70.040**	**76.074**	**91.622**
Payable Days Outstanding	54	51	122	76	85	98
Average Payable Days Outstanding						81

Table 52 – Secil's historical payables breakdown. Source: Secil's Annual Reports and own calculations.

After presenting the historical breakdown accounts of receivables, inventories and payables, as well as the respective average days outstanding for those accounts, and calculated the SOPE and the cash operating according with the formulas presented on Appendix 14, it is straightforward to forecast the net working capital and the respective investment need (see table 53). It was assumed that the average of the days outstanding will remain constant in the future.

Secil's Net Working Capital						
Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
ASSETS						
Operating Cash	27.861.214	28.180	29.107	30.120	31.285	32.610
Receivables	82.797.564	83.746	86.500	89.511	92.972	96.909
Inventories	79.200.591	81.098	85.329	89.970	95.279	101.308
SOPE	9.683.176	10.247	9.802	9.944	10.870	11.941
Total Assets	199.542.545	203.272	210.738	219.546	230.406	242.768
LIABILITIES						
Payables	83.152.376	85.144	89.587	94.459	100.033	106.363
SOPE	30.982.521	32.172	33.676	35.450	37.713	40.259
Total Liabilities	114.134.897	117.316	123.263	129.909	137.746	146.622
Net Working Capital	**85.407.648**	**85.956**	**87.475**	**89.636**	**92.660**	**96.146**
Investment in Net Working Capital	**-9.961.635**	**-85.321.692**	**1.520**	**2.161**	**3.024**	**3.486**

Table 53 – Secil's expected Net Working Capital and Investment in Net Working Capital. Source: own calculations.

Appendix 15 – Depreciation and Capital Expenditures

When there is information available on the subject of the depreciation schedule and the equipment purchases, the depreciation rate could be easily obtained. However, the lack of information is limiting the simple depreciation forecast process and some assumptions must be considered. According to Koller et al. (2005), when there is information regarding the assets already depreciated, one approach is to calculate the depreciation rate by dividing the depreciation for the gross amount of the property, plant and equipment (PP&E). When that is not the case, the net PP&E is better tied with the depreciation for better representing the assets in use to be depreciated and hence, do not overestimate its value. However, if the investment is stable, the net PP&E will tend to zero therefore, it makes more sense to calculate the depreciation rate through the gross amount of the PP&E. Therefore, the first step is to disaggregate the historical gross assets, as well as the respective depreciation amount spent on each year.

Koller et al. (2005) indicates that a reasonable proxy for the Capital Expenditures' (CAPEX) calculation may be obtained through the increase on gross assets from one year to another. Given the total expected CAPEX, it is reasonable to follow the advice from Koller et al. (2005) in order to perceive how much of the total CAPEX was allocated to each class of assets and make each class of the gross assets to grow at the respective CAPEX, calculated according to the historical average of CAPEX allocated to each asset.

Once computed the forecasted gross assets, the average depreciation rate is applicable and each depreciation amount can be obtained. Finally, the net amount of the assets is given by the difference between the gross assets and the cumulative depreciation.

Appendix 15A – Portucel's Depreciation and Capital Expenditures

The first step is to disaggregate the gross assets by each class of asset in order to understand the assets which contribute the most to the total assets of Portucel (see table 54).

Portucel's Gross Assets ('000 EUR)	2005	2006	2007	2008	2009	2010	2011
PROPERTY, PLANT & EQUIPMENT							
Land	101.157	100.808	100.525	102.975	108.208	108.909	114.006
Buildings and other constructions	385.970	384.328	386.389	387.003	477.978	498.283	498.183
Equipment and other tangibles	2.478.041	2.561.649	2.561.531	2.584.233	3.100.516	3.322.060	3.276.529
Construction in progress	75.694	8.421	41.427	270.797	175.172	26.579	19.588
Gross value	3.040.863	3.055.207	3.089.873	3.345.008	3.861.874	3.955.832	3.908.305
OTHER INTANGIBLE ASSETS							
Industrial property and other rights	2.353	2.472	4.162	1.896	1.896	1.896	1.895
CO2 Emission Licenses	13.214	2.074	6	3.652	1.856	73	5.694
Investigation and Development	4.291	4.291	0	0	0	0	0
Construction in progress	0	87	0	0	0	0	0
Gross value	19.858	8.924	4.167	5.548	3.753	1.970	7.589
GOODWILL	376.756	376.756	376.756	376.756	376.756	376.756	376.756
BIOLOGICAL ASSETS	136.239	123.295	122.925	122.827	118.290	110.503	110.769
FINANCIAL ASSETS AVAILABLE FOR SALE	358	516	130	130	130	126	126
Total Gross Value	3.574.074	3.564.699	3.593.851	3.850.269	4.360.803	4.445.187	4.403.547

Table 54 – Portucel's historical gross assets. Source: Portucel's Annual Reports.

With the purpose of understanding in which assets does Portucel spends the most, table 55 presents an estimation of the average of capital spent on each assets' class. It was estimated by subtracting the gross value of the assets of a year by the previous year.

Portucel's CAPEX ('000 EUR)	2006	2007	2008	2009	2010	2011	Average	100%
PROPERTY, PLANT & EQUIPMENT								
Land	-349	-283	2.450	5.233	702	5.097	8,3%	5,0%
Buildings and other constructions	-1.642	2.061	614	90.976	20.305	-101	7,3%	4,4%
Equipment and other tangibles	83.607	-118	22.701	516.284	221.544	-45.531	56,9%	34,4%
Construction in progress	-67.273	33.006	229.370	-95.625	-148.593	-6.992	89,0%	53,9%
Total PP&E	14.344	34.666	255.135	516.867	93.958	-47.527		
OTHER INTANGIBLE ASSETS								
Industrial property and other rights	120	1.689	-2.266	0	0	-1	2,4%	1,4%
CO2 Emission Licenses	-11.140	-2.068	3.646	-1.795	-1.783	5.621	1,4%	0,8%
Investigation and Development	0	0	0	0	0	0	0,0%	0,0%
Construction in progress	87	0	0	0	0	0	0,0%	0,0%
Total other intangibles	-10.934	-4.757	1.381	-1.795	-1.783	5.620		
GOODWILL	0	0	0	0	0	0	0,0%	0,0%
BIOLOGICAL ASSETS	-12.943	-371	-98	-4.537	-7.787	267	0,0%	0,0%
FINANCIAL ASSETS AVAILABLE FOR SALE	159	-386	0	0	-4	0	0,0%	0,0%
Total estimated CAPEX	83.694	36.756	260.162	612.492	242.551	16.338	165%	100%

Table 55 – Estimation of Portucel's historical capital invested by asset. Source: own calculations.

From the two tables displayed above, it is possible to conclude that as the gross value of goodwill remained unchanged since 2006 and as there is no prospect of Portucel to acquire a new company, it will remain in accordance with the past values. Regarding the other two accounts – biological assets and assets available for sale – as they are recorded at fair value (irregular pattern) and do not present a significant impact on the total assets, it will also be assumed a zero investment on both, with its gross value remaining unchanged. Portucel's PP&E and other intangible assets require more attention and a deeper analysis is necessary.

Portucel disclosed that it will invest EUR 100 million, on average, each year during the explicit period. In fact it is in line with the historical average of the CAPEX. With this information, it was assumed that each gross asset will grow by the amount of the expected CAPEX multiplied by the 100% proportion of the historical capital invested average (see table 56 for the explicit period's gross assets).

Portucel's Gross Assets ('000 EUR)	2012E	2013E	2014E	2015E	2016E	2017E
PROPERTY, PLANT & EQUIPMENT						
Land	119.043	124.080	129.117	134.154	139.190	144.227
Buildings and other constructions	502.582	506.981	511.380	515.779	520.178	524.577
Equipment and other tangibles	3.310.944	3.345.360	3.379.775	3.414.190	3.448.606	3.483.021
Construction in progress	73.454	127.319	181.185	235.051	288.917	342.783
Gross value	4.006.023	4.103.740	4.201.457	4.299.174	4.396.891	4.494.608
OTHER INTANGIBLE ASSETS	0	0	0	0	0	0
Industrial property and other rights	3.330	4.764	6.199	7.633	9.068	10.502
CO2 Emission Licenses	6.543	7.391	8.240	9.088	9.936	10.785
Investigation and Development	0	0	0	0	0	0
Construction in progress	0	0	0	0	0	0
Gross value	9.872	12.155	14.438	16.721	19.004	21.287
GOODWILL	376.756	376.756	376.756	376.756	376.756	376.756
BIOLOGICAL ASSETS	110.769	110.769	110.769	110.769	110.769	110.769
FINANCIAL ASSETS AVAILABLE FOR SALE	126	126	126	126	126	126
Total Gross Value	4.503.547	4.603.547	4.703.547	4.803.547	4.903.547	5.003.547
CAPEX	100.000	100.000	100.000	100.000	100.000	100.000

Table 56 – Portucel's expected gross assets. Source: Portucel's Annual Reports and own calculations.

As previously discussed on Appendix 13, the grants that Portucel receives from AICEP are to finance investment projects and therefore, grants will affect the depreciation and assets amounts. Although Portucel's income statements present the depreciation amount net of grants, in order to be consistent with the assumptions further referred, grants will be recorded in a separate account, but producing the same effect. The consistency of this separability relies on the need to access the most accurate annual depreciation rate, which was obtained by dividing the annual gross depreciation of each asset by the respective gross asset amount.

The forecasted gross assets are expected to be depreciated at the historical average of the gross depreciation rate, which will remain constant from 2012 onwards. Please, observe table 57 (below) to access the average depreciation rate considered for each asset and the depreciation amount (notice that it only presents the expected values, but the historical depreciations were of great importance to reach the average depreciation rate).

Portucel's Depreciation ('000 EUR)	Average	2012E	2013E	2014E	2015E	2016E	2017E
PROPERTY, PLANT & EQUIPMENT							
Land	0,00%	0	0	0	0	0	0
Buildings and other constructions	-4,15%	-20.870	-21.053	-21.235	-21.418	-21.601	-21.783
Equipment and other tangibles	-3,11%	-102.978	-104.049	-105.119	-106.189	-107.260	-108.330
Total PP&E		-123.848	-125.101	-126.354	-127.607	-128.860	-130.114
OTHER INTANGIBLE ASSETS							
Industrial property and other rights	-1,12%	-37	-53	-69	-86	-102	-118
CO_2 Emission Licenses	0,00%	0	0	0	0	0	0
Total Intangible Assets		**-37**	**-53**	**-69**	**-86**	**-102**	**-118**
Total Gross Depreciation		**-123.885**	**-125.155**	**-126.424**	**-127.693**	**-128.962**	**-130.231**

Table 57 – Portucel's expected gross assets depreciation with the respective average of the depreciation rate. Source: Portucel's Annual Reports and own calculations.

Appendix 15B – Secil's Depreciation and Capital Expenditures

The procedure used in Portucel's depreciation and CAPEX estimation was also applied for Secil. According to the table 58, displayed below, it is possible to notice that the PP&E is the major class of Secil's assets.

Secil's Gross Assets ('000 EUR)	2006	2007	2008	2009	2010	2011
PROPERTY, PLANT & EQUIPMENT						
Land and Natural Resources	127.623	142.558	145.983	151.789	159.664	174.502
Landscape Remediation	0	0	5.052	5.094	5.094	5.094
Buildings and other improvements	306.696	352.370	356.799	359.003	362.192	377.485
Plant and Equipment	1.018.036	1.155.870	1.179.716	1.203.755	1.227.370	1.268.645
Assets in Progress	11.547	14.301	29.073	21.478	26.460	45.895
Advance Payments	1.411	2.366	4.386	3.742	3.433	3.340
Gross value	1.465.313	1.667.465	1.721.009	1.744.862	1.784.213	1.874.960
OTHER INTANGIBLE ASSETS						
CO2 Emission Licenses	16.899	106	62.236	25.804	35.388	32.733
GOODWILL	192.068	192.922	205.927	203.647	203.681	202.559
PROPERTY INVESTMENTS						
For rent and sale	364	348	332	2.061	2.061	2.061
Total Gross Assets	**1.674.644**	**1.860.841**	**1.989.504**	**1.976.373**	**2.025.343**	**2.112.313**

Table 58 – Secil's historical gross assets. Source: Secil's Annual Reports.

Although the estimated CAPEX (calculated by subtracting the gross value of the assets of a given year by its precedent) and the CAPEX reported on Secil's annual reports present a great discrepancy, the values presented in table 59 (below) have the purpose of offering a perception of which assets does Secil spend on the most.

Secil's CAPEX ('000 EUR)	2006	2007	2008	2009	2010	2011	Average	100%
PROPERTY, PLANT & EQUIPMENT								
Land and Natural Resources		14.935	3.425	5.806	7.874	14.838	23%	11%
Landscape Remediation		0	5.052	42	0	0	2%	1%
Buildings and other improvements		45.673	4.429	2.204	3.188	15.293	35%	17%
Plant and Equipment		137.833	23.846	24.039	23.615	41.274	123%	61%
Assets in Progress		2.755	14.771	-7.595	4.983	19.435	17%	8%
Advance Payments		955	2.020	-644	-309	-94	1%	0%
Total PP&E		202.152	53.544	23.853	39.351	90.748	200%	100%
OTHER INTANGIBLE ASSETS								
CO2 Emission Licenses		-16.792	62.130	-36.432	9.584	-2.655	0%	0%
GOODWILL		854	13.005	-2.281	35	-1.123	0%	0%
PROPERTY INVESTMENTS								
For rent and sale		-16	-16	1.729	0	0	1%	0,4%
Total estimated CAPEX		**186.197**	**128.663**	**-13.131**	**48.970**	**86.970**	**201%**	**100%**
Total CAPEX	**99.146**	**40.914**	**40.615**	**29.947**	**44.165**	**62.210**		

Table 59 – Estimation of Secil's historical capital invested by asset. Source: own calculations.

From table 59 (on the previous page), it can be observed that Secil's goodwill has been suffering some changes, however, it is not expected that Secil will acquire or sell any company for a significant change on this asset value therefore, as consequence of a zero investment plan, goodwill's gross assets are expected to remain at the same amount.

Regarding the other intangible assets, it was also assumed that Secil would not invest in this class of assets. This assumption seems rational given the irregular pattern of this assets' class and discrepancy between values.

Secil's PP&E and investment property assets require more attention and a deeper analysis is needed. It was assumed that Secil's CAPEX would remain constant and equal to the average of the historical CAPEX which yield a value around EUR 53 million. Then, it was assumed that each gross asset will grow by the amount of the expected CAPEX multiplied by the 100% proportion of the historical capital invested's average (see table 60 for the gross assets' explicit periods).

Secil's Gross Assets ('000 EUR)	2012E	2013E	2014E	2015E	2016E	2017E
PROPERTY, PLANT & EQUIPMENT						
Land and Natural Resources	180.523	186.544	192.565	198.587	204.608	210.629
Landscape Remediation	5.748	6.402	7.057	7.711	8.365	9.020
Buildings and other improvements	386.577	395.669	404.761	413.853	422.946	432.038
Plant and Equipment	1.300.833	1.333.021	1.365.209	1.397.397	1.429.584	1.461.772
Assets in Progress	50.307	54.718	59.130	63.542	67.953	72.365
Advance Payments	3.587	3.835	4.083	4.330	4.578	4.826
Gross value	1.927.575	1.980.190	2.032.805	2.085.420	2.138.034	2.190.649
OTHER INTANGIBLE ASSETS	0	0	0	0	0	0
CO2 Emission Licenses	32.733	32.733	32.733	32.733	32.733	32.733
GOODWILL	202.559	202.559	202.559	202.559	202.559	202.559
PROPERTY INVESTMENTS	0	0	0	0	0	0
For rent and sale	2.278	2.496	2.714	2.932	3.150	3.368
Total Gross Assets	**2.165.146**	**2.217.978**	**2.270.811**	**2.323.644**	**2.376.476**	**2.429.309**
CAPEX	**52.833**	**52.833**	**52.833**	**52.833**	**52.833**	**52.833**

Table 60 – Secill's expected gross assets. Source: Secill's Annual Reports and own calculations.

The depreciated rate was assumed to be the average of the depreciated amount divided by the gross assets of the respective asset and this rate is expected to remain constant during the explicit period. As a consequence, the depreciation is given by the multiplication between the depreciation rate and the expected gross assets (see table 61 on the next page). Notice that it only presents the expected values, but the historical depreciations were of great importance to reach the average depreciation rate.

Secil's Depreciation ('000 EUR)	Average	2012E	2013E	2014E	2015E	2016E	2017E
PROPERTY, PLANT & EQUIPMENT		**-62.293**	**-63.858**	**-65.422**	**-66.987**	**-68.551**	**-70.115**
Land and Natural Resources	-1,69%	-2.923	-3.021	-3.119	-3.216	-3.314	-3.411
Landscape Remediation	-2,94%	-127	-141	-155	-170	-184	-199
Buildings and other improvements	-2,98%	-10.986	-11.244	-11.502	-11.761	-12.019	-12.277
Plant and Equipment	-3,17%	-48.258	-49.452	-50.646	-51.840	-53.034	-54.228
OTHER INTANGIBLE ASSETS		**-940**	**0**	**0**	**0**	**0**	**0**
CO2 Emission Licenses	0,00%	-940	0	0	0	0	0
GOODWILL	0,00%	**0**	**0**	**0**	**0**	**0**	**0**
PROPERTY INVESTMENTS		**-43**	**-47**	**-51**	**-55**	**-59**	**-63**
For rent and sale	-1,88%	-43	-47	-51	-55	-59	-63
Total Depreciation		**-63.276**	**-63.905**	**-65.473**	**-67.042**	**-68.610**	**-70.179**

Table 61 – Secil's expected assets depreciation with the respective average of the depreciation rate.

Source: Secil's Annual Reports and own calculations.

Appendix 16 – S&P's and Moody's Equivalence and Spread by Rating

Moody's		S&P	
Long-term	Short-term	Long-term	Short-term
Aaa		AAA	
Aa1		AA+	
Aa2		AA	
Aa3		AA-	A-1+
A1		A+	
A2	P-1	A	A-1
A3		A-	
Baa1	P-2	BBB+	A-2
Baa2		BBB	
Baa3	P-3	BBB-	A-3
Ba1		BB+	
Ba2		BB	
Ba3		BB-	
B1		B+	
B2		B	
B3		B-	B
Caa1		CCC+	
Caa2		CCC	
Caa3		CCC-	
		CC	
Ca		C	C
C			
	Not prime	D	

Table 62 – S&P's and Moody's ratings equivalence. Source: Damodaran.

S&P	Spread is	Moody's
D	12.00%	C
C	10.50%	Ca
CC	9.50%	Ca
CCC	8.75%	Caa
B-	6.75%	B3
B	6.00%	B2
B+	5.50%	B1
BB	4.75%	Ba2
BB+	3.75%	Ba1
BBB	2.50%	Baa
A-	1.65%	A3
A	1.40%	A2
A+	1.30%	A1
AA	1.15%	Aa
AAA	0.65%	Aaa

Table 63 – Spread by rating. Source: Damodaran (Accessed on June 7, 2012).

Appendix 17 – Portucel's Debt Structure and Interest Expenses

Portucel details most part of the information related to its debt's structure. Table 64 displays the historical interest-bearing debt, mostly composed by the non-current debt, brokendown into bonds issue and bank loans, and the current debt. The non-current debt is also detailed into issued date, Euribor indexed to the loan and the respective spread, allowing the computation of the interest paid for each portion of debt.

Portucel's Debt										
'000 EUR	Issued	Euribor	Spread	2005	2006	2007	2008	2009	2010	2011
Non-Current Debt										
Bonds issue										
Portucel (2005/2008)	Dec/08	Euribor 6M	0,70%	25.000	25.000	25.000	25.000	0	0	0
Portucel (2005/2010) 2nd emission	Dec/05	Euribor 6M	0,95%	25.000	25.000	25.000	25.000	25.000	0	0
Portucel (2005/2010)	March/05	Euribor 6M	1,00%	300.000	300.000	300.000	300.000	300.000	0	0
Portucel (2005/2012)	Oct/05	Euribor 6M	1,10%	150.000	150.000	150.000	150.000	150.000	150.000	150.000
Portucel (2005/2013)	May/05	Euribor 6M	0,88%	200.000	200.000	200.000	200.000	200.000	200.000	200.000
Portucel (2010/2015) 2nd emission	Feb/10	Euribor 6M	2,25%	0	0	0	0	0	100.000	100.000
Portucel (2010/2015)	Feb/10	Euribor 3M	1,90%	0	0	0	0	0	100.000	100.000
Issue Costs				-6.941	-5.850	-4.759	-3.673	-3.347	-3.392	-2.234
% Issue Costs				*-1,00%*	*-0,84%*	*-0,68%*	*-0,55%*	*-0,50%*	*-0,62%*	*-0,56%*
Sub Total Bonds				693.059	694.150	695.241	671.327	671.653	546.608	547.766
Bank Loans										
Loan	Jan/05	Euribor 6M	0,95%	25.000	25.000	21.875	15.625	9.375	3.125	0
EIB	Feb/05	Euribor 3M		28.929	19.277					
EIB - *Ambiente A*	April/09	Euribor 6M	0,80%					65.000	65.000	65.000
EIB - *Ambiente B*	March/10	Euribor 6M	1,00%						30.000	30.000
EIB - *Energy*	March/10	Euribor 6M	1,00%						85.000	85.000
Issue Costs				-129	-108	-86	-65	-43	-36	0
% Issue Costs				*-0,24%*	*-0,24%*	*-0,39%*	*-0,41%*	*-0,06%*	*0,00%*	*-0,0002%*
Sub Total Bank Loans				53.921	44.210	21.772	15.560	74.332	183.089	169.047
Total of Non-Current Debt				747.420	738.495	717.012	686.887	745.985	729.697	716.813
Total of Current Debt				78.240	10.464	60.856	16.095	6.312	91.250	14.085
Gross Interest-bearing Debt				825.659	748.958	777.869	702.982	752.297	820.947	730.898

Table 64 – Portucel's historical interest-bearing debt. Source: Portucel's Annual Reports.

Portucel invested heavily in the past years, leaving space for a stable period in the near future. All of the non-current debt issued by Portucel in the past was committed in the due date and the same is expected for the next issues to come. Currently, Portucel has one bond with maturity in 2013 and two additional bonds with maturities in 2015. The issue costs are expected to remain at the same rate as the previous year.

Regarding the long-term bank loans, Portucel issued three sets of loans from the European Investment Bank (EIB). The EIB – *Ambiente A* was issued in 2009, with 10-years maturity and repaid in 14 semi-annual instalments of EUR 4.642.857, which starts to be paid in June, 2012. The second, EIB – *Ambiente B* has a maturity of 11-years and is to be repaid in 18 semi-annual instalments of EUR 1.666.667 starting in December, 2012. The last one, denominated as EIB – *Energy* has 14-years of maturity and it will be repaid in 24 semi-annual instalments of EUR 3.541.667 starting in June, 2013. The issue costs related with the non-current bank loans are assumed to remain at the same level of the previous year.

Portucel's annual reports do not disclose information regarding the current debt. Also, it displays an irregular pattern and there is no sign of how much it might vary in the future hence, an average of the historical periods was assumed to remain constant (see table 65).

Portucel's Debt									
'000 EUR	Issue Date	Euribor	Spread	2012E	2013E	2014E	2015E	2016E	2017E
Non-current									
Bonds issue									
Portucel (2005/2013)	May/05	Euribor 6M	0,88%	200.000	0	0	0	0	0
Portucel (2010/2015) 2nd emission	February/10	Euribor 6M	2,25%	100.000	100.000	100.000	0	0	0
Portucel (2010/2015)	February/10	Euribor 3M	1,90%	100.000	60.000	60.000	0	0	0
New - Portucel (2012/2017)	May/2013	Euribor 6M	1,25%	200.000	200.000	200.000	200.000	200.000	200.000
New - Portucel (2013/2023)	February/15	Euribor 6M	1,25%	0	200.000	200.000	200.000	200.000	200.000
New - Portucel (2015/2020)	February/15	Euribor 6M	1,25%	0	0	0	150.000	150.000	150.000
Issue Costs				-3.351	-3.128	-3.128	-2.234	-2.234	-2.234
% Issue Costs				-0,56%	-0,56%	-0,56%	-0,56%	-0,56%	-0,56%
Sub Total Bonds				596.649	556.872	556.872	547.766	547.766	547.766
Bank Loans									
EIB - Ambiente A	April/09	Euribor 6M	0,80%	55.714	46.429	37.143	27.857	18.571	9.286
EIB - Ambiente B	March/10	Euribor 6M	1,00%	28.333	25.000	21.667	18.333	15.000	11.667
EIB - Energy	March/10	Euribor 6M	1,00%	85.000	77.917	70.833	63.750	56.667	49.583
Issue Costs				0	0	0	0	0	0
% Issue Costs				0,00%	0,00%	0,00%	0,00%	0,00%	0,00%
Sub Total Bank Loans				169.047	149.345	129.643	109.940	90.238	70.536
Total of Non-Current Debt				**765.696**	**706.217**	**686.515**	**657.706**	**638.004**	**618.301**
Total of Current Debt				**39.614**	**39.614**	**39.614**	**39.614**	**39.614**	**39.614**
Gross Interest-bearing Debt				**805.310**	**745.831**	**726.129**	**697.320**	**677.618**	**657.916**

Table 65 – Portucel's expected interest-bearing debt. Source: Portucel's Annual Reports and own calculations.

Portucel's loans bear interest at the Euribor rate plus a fixed spread. Therefore, in order to compute the interest expenses, it was necessary to get the forecasted Euribor rates, according to the maturity and the months where it is expected to pay interests (see table 66).

Euribor Forward Rates							
Euribor 3 Months		Euribor 6 Months		Euribor 6 Months		Euribor 6 Months	
Date	Forward Rate	Date	Forward Rate	Date	Forward Rate	Date	Forward Rate
05/24/2012	0,681	05/24/2012	0,966	02/03/2012	1,409	12/05/2011	1,697
08/24/2012	1,2428	11/26/2012	0,8606	08/03/2012	0,985	06/05/2012	1,202
11/26/2012	0,8841	05/24/2013	0,887	02/04/2013	0,938	12/05/2012	1,209
02/25/2013	0,835	11/25/2013	0,976	08/05/2013	0,9829	06/05/2013	1,2821
05/24/2013	0,8904	05/26/2014	1,1556	02/03/2014	1,2221	12/05/2013	1,7156
08/26/2013	0,8822	11/24/2014	1,2446	08/04/2014	1,2797	06/05/2014	1,8557
11/25/2013	0,9644	05/25/2015	1,5027	02/03/2015	1,7048	12/05/2014	2,2299
02/24/2014	0,9811	11/24/2015	1,6341	08/03/2015	1,8581	06/05/2015	2,4252
05/26/2014	1,128	05/24/2016	1,8992	02/03/2016	2,2191	12/07/2015	2,7115
08/25/2014	1,1726	11/24/2016	2,0515	08/03/2016	2,406	06/06/2016	2,9088
11/24/2014	1,2167	05/24/2017	2,1947	02/03/2017	2,587	12/05/2016	3,0594
02/24/2015	1,2604	11/24/2017	2,3364	08/03/2017	2,761	06/05/2017	3,2339
05/25/2015	1,4671	05/24/2018	2,4644	02/05/2018	2,9913	12/05/2017	3,1325
08/24/2015	1,5338	11/26/2018	2,5933	08/03/2018	3,1551	06/05/2018	3,2575
11/24/2015	1,6003	05/24/2019	2,5832	02/04/2019	2,884	12/05/2018	3,3353
02/24/2016	1,6653	11/25/2019	2,6887	08/05/2019	2,9904	06/05/2019	3,4429
05/24/2016	1,8584	05/25/2020	2,6914	02/03/2020	3,1014	12/05/2019	3,3789
08/24/2016	1,9364	11/24/2020	2,7779	08/03/2020	3,1982	06/05/2020	3,4612
11/24/2016	2,0133	05/24/2021	2,8291	02/03/2021	3,2141	12/07/2020	3,4999
02/24/2017	2,0875	11/24/2021	2,9055	08/03/2021	3,295	06/07/2021	3,5688
05/24/2017	2,1445	05/24/2022	2,8735	02/03/2022	3,2979	12/06/2021	3,6539
08/24/2017	2,2163	11/24/2022	2,9354	08/03/2022	3,3649	06/06/2022	3,7137
11/24/2017	2,2878	05/24/2023	2,8882	02/03/2023	3,3461	12/05/2022	3,5826

Tables 66 – Euribor Forward Rates. Source: Bloomberg (Accessed on May 22, 2012).

Table 67 presents Portucel's expected interest expenses.

Portucel's Interest Expenses									
'000 EUR	Issue Date	Euribor	Spread	2012E	2013E	2014E	2015E	2016E	2017E
Non-current									
Bonds issue									
Portucel (2005/2012)	October/05	Euribor 6M	1,10%	3.677	0	0	0	0	0
Portucel (2005/2013)	May/05	Euribor 6M	0,88%	7.153	3.524	0	0	0	0
Portucel (2010/2015) 2nd emission	February/10	Euribor 6M	2,25%	6.894	6.421	7.002	0	0	0
Portucel (2010/2015)	February/10	Euribor 3M	1,90%	11.089	7.543	7.259	0	0	0
New - Portucel (2012/2017)	May/2013	Euribor 6M	1,25%	8.667	8.740	9.815	11.288	12.916	14.076
New - Portucel (2013/2023)	February/15	Euribor 6M	1,25%	0	8.856	10.018	12.140	14.264	15.710
New - Portucel (2015/2020)	February/15	Euribor 6M	1,25%	0	0	0	9.105	10.698	11.783
Bank Loans				0	0	0	0	0	0
EIB - Ambiente A	April/09	Euribor 6M	0,80%	2.514	2.445	2.499	2.339	1.929	1.297
EIB - Ambiente B	March/10	Euribor 6M	1,00%	663	1.371	1.468	1.484	1.393	1.186
EIB - Energy	March/10	Euribor 6M	1,00%	0	4.152	4.627	4.924	4.936	4.595
Total Interest Expenses				**40.657**	**43.052**	**42.687**	**41.280**	**46.137**	**48.647**

Table 67 – Portucel's expected interest expenses. Source: Portucel's Annual Reports, Bloomberg and own calculations.

Appendix 18 – Portucel's Credit Rating

Table 68 presents the combination of ratios necessary to attribute the most suitable rating for the company according to S&P's guidelines.

Portucel's Credit Rating - by S&P's (2007-2009)								
'000 EUR	2009	2010	2011	2012E	2013E	2014E	2015E	2016E
EBIT	132.080	277.817	266.156	304.797	224.965	244.356	237.026	195.829
Interest Expense	-32.618	-23.817	-30.545	-40.657	-43.052	-42.687	-41.280	-46.137
EBIT Interest Coverage	**4,0**	**11,7**	**8,7**	**7,5**	**5,2**	**5,7**	**5,7**	**4,2**
EBITDA	243.624	399.002	390.684	428.682	350.120	370.780	364.719	324.791
EBITDA Interest Coverage	**7**	**17**	**13**	**11**	**8**	**9**	**9**	**7**
Net Income	105.080	210.588	196.331	192.869	138.211	156.732	151.549	117.632
Dep. & Amort.	111.544	121.185	124.527	123.885	125.155	126.424	127.693	128.962
Deferred Income Taxes	5.091	10.930	16.560	8.764	8.764	8.764	8.764	8.764
Funds From Operations (FFO)	221.715	342.703	337.419	325.519	272.130	291.919	288.006	255.358
Long Term Debt	745.985	729.697	716.813	765.696	706.217	686.515	657.706	638.004
Short Term Debt	6.312	91.250	14.085	39.614	39.614	39.614	39.614	39.614
Total Debt	752.297	820.947	730.898	805.310	745.831	726.129	697.320	677.618
FFO/Total Debt	**29%**	**42%**	**46%**	**40%**	**36%**	**40%**	**41%**	**38%**
Capex	-522.307	-95.898	-53.797	-100.000	-100.000	-100.000	-100.000	-100.000
Changes in WC	-158.951	53.719	15.998	64.996	-18.042	7.643	8.409	-9.566
Free Operating Cash Flow	-141.641	193.086	267.625	160.523	190.172	184.276	179.597	164.925
Free Operating Cash Flow/Total Debt	**-19%**	**24%**	**37%**	**20%**	**25%**	**25%**	**26%**	**24%**
Equity	1.270.556	1.303.503	1.478.156	1.552.369	1.573.428	1.633.416	1.675.251	1.671.643
Total Debt/Total Debt + Equity	**37%**	**39%**	**33%**	**34%**	**32%**	**31%**	**29%**	**29%**
Non Current Deferred Taxes	138.441	164.999	193.237	193.237	193.237	193.237	193.237	193.237
Average Capital	2.118.686	2.225.372	2.345.870	2.476.603	2.531.706	2.532.639	2.559.295	2.554.153
Return on Capital	**6,2%**	**12,5%**	**11,3%**	**12,3%**	**8,9%**	**9,6%**	**9,3%**	**7,7%**
Total Debt/EBITDA	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2**

Table 68 – Portucel's historical and expected ratios by S&P's. Source: S&P's (2006, 2008), Portucel's Annual Reports and own calculations.

Table 69 presents the ranges of the average ratios from 2007 to 2009.

Average from 2007 to 2009 (S&P's)	AAA	AA	A	BBB	BB	B	CCC
EBIT Interest Coverage	30,50	18,30	11,00	5,80	3,50	1,40	0,40
EBITDA Interest Coverage	33,50	20,50	14,30	7,60	5,20	2,30	1,10
FFO/Total Debt	200,7%	73,4%	53,0%	34,0%	25,3%	12,0%	2,5%
Free Operating Cash Flow/Total Debt	157,8%	49,8%	34,0%	17,0%	11,9%	3,2%	-3,6%
Total Debt/Total Debt + Equity	15,10%	34,70%	35,70%	44,70%	50,40%	73,10%	98,90%
Return on Capital	34,20%	25,40%	21,10%	14,10%	12,20%	8,30%	2,70%
Total Debt/EBITDA	0,40	1,10	1,50	2,30	3,00	5,30	8,60

Table 69 – Rating's Ranges, average from 2007 to 2009. Source: S&P's (2009).

Table 70 presents the respective rating for each ratio and it is according with this output that Portucel's rating will be defined.

Portucel's Rating	2009	2010	2011	2012E	2013E	2014E	2015E	2016E
EBIT Interest Coverage	BB	A	BBB	BBB	BB	BB	BB	BB
EBITDA Interest Coverage	BB	A	BBB	BBB	BBB	BBB	BBB	BB
FFO/Total Debt	BB	BBB	BBB	BBB	BBB	BBB	BBB	BBB
Free Operating Cash Flow/Total Debt	AAA	BBB	A	BBB	BBB	BBB	BBB	BBB
Total Debt/Total Debt + Equity	BBB	BBB	AA	AA	AA	AA	AA	AA
Return on Capital	CCC	BB	B	BB	B	B	B	CCC
Total Debt/EBITDA	B	BBB	BBB	BBB	BBB	BBB	BBB	BBB

Table 70 – Portucel's historical and expected rating attribution for each ratio. Source: S&P's (2009) and own calculations.

Overall, it can be noticed that Portucel's rating presents an improving trend in some ratios. Counting the number of times that each rating occurs during the historical and forecasted periods, it is possible to conclude that Portucel's rating is a BBB. However, the ratings' ranges are just an average of several companies from 2007 to 2009 and probably it is not taking into consideration the fact that Portucel is a cyclical company and thus, riskier than others. Therefore, it will be assumed that Portucel presents a rating of BB+, which is also in line with the company's information advice.

Appendix 19 – Secil's Debt Structure and Interest Expenses

Secil's annual reports disclose which types of non-current bank loans it is currently benefiting from, however, there is no information regarding the terms of the contracts, namely the reimbursement date and the spreads of each loan. Therefore, it must be assumed that Secil's debt is in equilibrium (see table 71 below for the Secil's historical debt components).

Secil's Debt						
Amounts in '000 EUR	2006	2007	2008	2009	2010	2011
Bond Loan						
SBI 2007	0	40.000	40.000	40.000	40.000	40.000
Bank Loans	113.245	81.197	48.961	12.400	108.169	38.864
Bank Loan A	0	0	0	0	0	69.306
Other Loans:						
POE	18.784	208	208	112	56	0
QREN	0	0	0	1.386	5.279	7.921
Finance Leases - Instalment Payments	722	504	464	0	0	3.666
Total of Non-Current Debt	132.751	121.909	89.634	53.899	121.442	159.756
Total of Current Debt	43.008	82.872	69.276	107.175	24.832	48.109
Total Debt	**175.759**	**204.780**	**158.910**	**161.074**	**146.274**	**207.865**

Table 71 – Secil's historical interest-bearing debt. Source: Secil's Annual Reports.

As Secil does not disclose any information regarding the debt's repayment conditions, the best assumption seems to consider that Secil will repay its debt according to its 2011's provisions, displayed on table 72 (below). It was considered that the debt expected to be repaid within one to two years will be repaid half in 2012 and the other half in 2013. The amount to be repaid within two to three years is expected to be fully repaid in 2014, and the same is applicable for the debt to be repaid within three to four years (repaid in 2015) and the debt to be repaid within four to five years (repaid in 2016). Regarding the debt which is expected to be paid in more than five years was assumed that only one fifth of it will be repaid in 2017.

Secil's Non-Current Reimbursement			
Amounts in '000 EUR	2009	2010	2011
1 to 2 Years	4.538	62.728	39.977
2 to 3 Years	4.037	3.524	22.863
3 to 4 Years	2.865	7.850	27.040
4 to 5 Years	1.816	3.090	19.673
More than 5 Years	40.643	44.250	50.203
Total	**53.899**	**121.442**	**159.756**

Table 72 – Secil's expected reimbursement plan of its non-current debt. Source: Secil's Annual Reports.

After performing the schedule of the debt's repayment, it is possible to perceive the forecasted Secil's debt amounts (see table 73 on the following page).

Secil's Debt						
Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
Bond Loan						
SBI 2007	40.000	40.000	40.000	40.000	40.000	40.000
Bank Loans	n/a	n/a	n/a	n/a	n/a	n/a
Bank Loan A	55.445	41.583	27.722	13.861	0	0
Other Loans:						
POE						
QREN	n/a	n/a	n/a	n/a	n/a	n/a
Finance Leases - Instalment Payments	n/a	n/a	n/a	n/a	n/a	n/a
New Bank Loan					40.000	40.000	40.000
Total of Non-Current Debt	139.768	119.779	96.916	109.876	130.203	160.162
Total of Current Debt	62.545	62.545	62.545	62.545	62.545	62.545
Total Debt	**202.313**	**182.324**	**159.461**	**172.421**	**192.748**	**222.707**

Tables 73 – Secil's expected interest-bearing debt. Source: own calculations.

As it is possible to notice, there is no available (n/a) information regarding most of Secil's loans. It was assumed that the SBI 2007 bank loan will be repaid after the explicit period and if Secil meets all its expected obligations regarding the debt repayments, in 2015 it has to issue new debt in order to keep a similar debt level amount. That bank loan was assumed to have similar characteristics to the SBI 2007 bank loan.

From the total interests expenses it was only extracted the interests from loans in order to obtain a better proxy between the loans and the interests paid on it. The percentage of interests paid over the total debt was obtained and an average of the 2006-2011 period is assumed to remain constant for the forecasted period. Then in order to obtain the total amount of interests and similar expenses, the percentage of interest was obtained from loans in the total expenses and assumed that the average of the historical period would remain equal (see table 74).

Secil's Interests Expenses									
Amounts in '000 EUR	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Interests from loans	-7.212	-4.531	-8.409	-9.780	-8.814	-7.708	-8.335	-9.318	-10.766
% Interest over total debt	*4,5%*	*3,1%*	*4,0%*						
Average			*4,83%*						
Interest and similar expenses	-8.663	-7.638	-9.163	-10.630	-9.580	-8.378	-9.059	-10.127	-11.701
% Interests over interest and similars	*83%*	*59%*	*92%*						
Average			*92%*						

Table 74 – Secil's historical and expected interests expenses. Source: Secil's Annual Reports and own calculations.

Appendix 20 – Secil's Credit Rating

Table 75 presents the combination of ratios necessary to attribute the most suitable rating for the company according to S&P's guidelines.

Secil's Credit Rating - by S&P's (2007-2009)									
Amounts in '000 EUR	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
EBIT	101.392	77.945	47.194	96.255	92.550	88.694	84.467	80.145	75.670
Interest Expense	-8.663	-7.638	-9.163	-10.630	-9.580	-8.378	-9.059	-10.127	-11.701
EBIT Interest Coverage	**11,7**	**10,2**	**5,2**	**9,1**	**9,7**	**10,6**	**9,3**	**7,9**	**6,5**
EBITDA	179.313	159.874	133.157	159.531	156.455	154.168	151.508	148.755	145.849
EBITDA Interest Coverage	**21**	**21**	**15**	**15**	**16**	**18**	**17**	**15**	**12**
Net Income	82.732	56.494	30.798	66.529	64.535	62.543	58.858	54.812	50.271
Dep. & Amort.	77.921	81.930	85.137	63.276	63.905	65.473	67.042	68.610	70.179
Deferred Income Taxes	21.769	24.678	29.023	22.122	24.640	24.714	24.491	24.945	24.989
Funds From Operations (FFO)	182.423	163.102	144.958	151.926	153.080	152.730	150.390	148.367	145.438
Long Term Debt	53.899	121.442	159.756	139.768	119.779	96.916	109.876	130.203	160.162
Short Term Debt	107.175	24.832	48.109	62.545	62.545	62.545	62.545	62.545	62.545
Total Debt	161.074	146.274	207.865	202.313	182.324	159.461	172.421	192.748	222.707
FFO/Total Debt	**113%**	**112%**	**70%**	**75%**	**84%**	**96%**	**87%**	**77%**	**65%**
Capex	29.947	44.165	62.210	52.833	52.833	52.833	52.833	52.833	52.833
Changes in WC	6.041	-14.701	-8.028	240	589	1.147	1.863	2.164	-64.410
Free Operating Cash Flow	206.329	221.968	215.196	204.519	205.324	204.416	201.361	199.035	262.681
Free Operating Cash Flow/Total Debt	**128%**	**152%**	**104%**	**101%**	**113%**	**128%**	**117%**	**103%**	**118%**
Equity	461.404	483.103	476.099	524.349	550.963	576.674	599.802	621.480	640.516
Total Debt/Total Debt + Equity	**26%**	**23%**	**30%**	**28%**	**25%**	**22%**	**22%**	**24%**	**26%**
Non Current Deferred Taxes	42.239	41.463	41.244	41.244	41.244	41.244	41.244	41.244	41.244
Average Capital	661.501	667.778	698.024	746.557	771.219	775.955	795.423	834.470	879.970
Return on Capital	**15,3%**	**11,7%**	**6,8%**	**12,9%**	**12,0%**	**11,4%**	**10,6%**	**9,6%**	**8,6%**
Total Debt/EBITDA	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**2**

Table 75 – Secil's historical and expected ratios by S&P's. Source: S&P's (2006, 2008), Secil's Annual Reports and own calculations.

Table 76 presents the ranges of the average ratios from 2007 to 2009.

Average from 2007 to 2009 (S&P's)	AAA	AA	A	BBB	BB	B	CCC
EBIT Interest Coverage	30,50	18,30	11,00	5,80	3,50	1,40	0,40
EBITDA Interest Coverage	33,50	20,50	14,30	7,60	5,20	2,30	1,10
FFO/Total Debt	200,7%	73,4%	53,0%	34,0%	25,3%	12,0%	2,5%
Free Operating Cash Flow/Total Debt	157,8%	49,8%	34,0%	17,0%	11,9%	3,2%	-3,6%
Total Debt/Total Debt + Equity	15,10%	34,70%	35,70%	44,70%	50,40%	73,10%	98,90%
Return on Capital	34,20%	25,40%	21,10%	14,10%	12,20%	8,30%	2,70%
Total Debt/EBITDA	0,40	1,10	1,50	2,30	3,00	5,30	8,60

Table 76 – Rating's Ranges, average from 2007 to 2009. Source: S&P's (2009).

Table 77 presents the respective rating for each ratio and it is according with this output that Secil's rating will be defined.

Secil's Rating	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
EBIT Interest Coverage	A	BBB	BB	BBB	BBB	BBB	BBB	BBB	BBB
EBITDA Interest Coverage	AA	AA	A	A	A	A	A	A	BBB
FFO/Total Debt	AA	AA	A	AA	AA	AA	AA	AA	A
Free Operating Cash Flow/Total Debt	AA	AA	AA	AA	AA	AA	AA	AA	AA
Total Debt/Total Debt + Equity	AA	AA	AA	AA	AA	AA	AA	AA	AA
Return on Capital	BBB	B	CCC	BB	B	B	B	B	B
Total Debt/EBITDA	AA	AA	BBB	A	A	AA	A	A	BBB

Table 77 – Secil's historical and expected rating attribution for each ratio. Source: S&P's (2009) and own calculations.

If the company's rating was easily obtained by counting the frequency that each rating occurs, Secil would have a rating of AA. But Secil is the proof that the ratios and ranges provided by the credit agencies are just guidelines and there are other important factors hidden and probably not quantifiable. In more than one annual report, Secil discloses that it did not meet a covenant of a financing contract related with the Net Debt/EBITDA ratio.

Comparing this occurance with Portucel's credit rating, Portucel never failed a covenant and it was assumed to present a rating of BB+. Moreover, inside information disclosed that Secil would present a rating of BB or even B. It would be irrational to assume a rating of AA when Secil fails consecutive covenants thus, a rating of BB will be assumed for Secil.

Appendix 21 – Dividends, reserves, retained earnings and minority interests

The following tables present part of the historical and expected calculations of both Portucel and Secil's net income application and minority interests. The dividends and reserves allocated to each year are respective to the previous years' net income. The percentage of dividends distributed is the average of the 2005/2006-2017 period and the legal reserves are 5% of the net income, which corresponds to the minimum required. However, Secil was recently fully purchased by Semapa thus, the dividends distributed are expected to increase 12% per year. According to Koller et al. (2005) the best practice in forecasting the minority interests is either use its share price or perform a DCF or multiple valuation, however, there was not enough information available to assume any of the possibilities therefore, a rolling average of the previous years was assumed for both companies.

Portucel	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Net Income After Tax	105.072	210.580	196.346	192.875	138.215	156.733	151.551	117.635	109.056
Minority Interests	7	8	-14	-6	-4	-1	-2	-3	-5
Portucel's Shareholders	105.080	210.588	196.331	192.869	138.211	156.732	151.549	117.632	109.050
Application of Shareholders' Net Income									
Dividends Distributed	79.007	62.077	0	119.262	117.159	96.748	109.712	121.239	94.106
Dividends Distributed	*60,3%*	*59,1%*	*0,0%*	*60,7%*	*60,7%*	*70,0%*	*70,0%*	*80,0%*	*80,0%*
Legal Reserves	-47.599	4.676	10.541	8.671	9.643	6.911	7.837	7.577	5.882
Retained Earnings	383.419	304.020	499.721	568.119	634.186	668.739	707.922	730.654	748.299

Table 78 – Portucel's historical and expected net income application and minority interests. Source: Portucel's Annual Reports and own calculations.

Secil	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Net Income	82.732	56.494	30.798	66.529	64.535	62.543	58.858	54.812	50.271
Secil's Shareholders	70.114	47.344	22.935	59.757	56.598	54.109	50.278	46.905	42.571
Minority interests	12.618	9.150	6.570	6.771	7.937	8.434	8.580	7.907	7.700
Application of Shareholders' Net Income									
Distribution of Dividends	42.020	37.017	28.754	11.508	29.984	31.806	34.056	35.442	37.032
% Dividends Distributed	*66,9%*	*52,8%*	*60,7%*	*50,2%*	*56,2%*	*62,9%*	*70,5%*	*79,0%*	*88,4%*
Legal Reserves	3.139	3.508	2.367	1.147	2.988	2.830	2.705	2.514	2.437
Other reserves	-2.891	29.629	16.222	16.222	16.222	16.222	16.222	16.222	16.222
Retained Earnings	28.757	29.882	30.090	24.148	34.712	40.452	41.577	37.676	28.889

Table 79 – Secil's historical and expected net income application and minority interests. Source: Secil's Annual Reports and own calculations.

Appendix 22 – Assumptions' Viability

In order to perceive if the forecasted assumptions are aligned with the historical values, some profitability and solvency ratios were computed. Then, the average of the historical and forecasted ratios allows a comparison. As it is possible to see in tables 80 and 81, respectively for both Portucel and Secil, the forecasted average is similar to the historical average, which validates the assumptions created during the whole dissertation. Moreover, it could be noticed that for both companies, both WACC and Ku are lower than the ROIC, indicating the ability of the companies to create value.

Portucel's Main Indicators														Average	
	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	Hist	Forecast
Profitability Ratios															
EBITDA Margin	26%	27%	29%	23%	22%	29%	26%	28%	24%	25%	24%	22%	21%	26%	24%
Return on Sales	6%	12%	13%	12%	10%	15%	13%	13%	9%	10%	10%	8%	7%	12%	10%
ROA	3%	5%	6%	5%	4%	8%	7%	6%	5%	5%	5%	4%	4%	6%	5%
ROE	6%	11%	13%	11%	8%	16%	13%	12%	9%	10%	9%	7%	7%	11%	9%
ROIC	6%	8%	11%	8%	6%	11%	10%	10%	8%	8%	8%	7%	7%	9%	8%
WACC								7%	7%	7%	7%	7%	7%		
Ku								7%	7%	7%	7%	7%	7%		
Solvency Ratios															
Debt to Equity	80%	67%	64%	56%	59%	63%	49%	52%	47%	44%	42%	40%	39%	63%	47%
Equity to Assets	46%	49%	48%	51%	50%	49%	52%	52%	54%	55%	56%	57%	57%	49%	54%

Table 80 – Portucel's historical and expected main indicators' ratios. Source: Portucel's Annual Reports and own calculations.

Secil's Main Indicators													Average	
	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E	Historical	Forecasted
Profitability Ratios														
EBITDA Margin	29%	26%	27%	31%	30%	26%	33%	32%	30%	29%	27%	26%	28%	29%
Return on Sales	14%	11%	13%	15%	11%	6%	14%	14%	13%	12%	11%	9%	12%	12%
ROA	8%	7%	8%	10%	7%	3%	7%	7%	7%	6%	5%	5%	7%	6%
ROE	17%	15%	18%	21%	14%	8%	15%	13%	12%	11%	10%	9%	15%	12%
ROIC	11%	11%	13%	17%	10%	6%	12%	12%	11%	11%	11%	11%	11%	11%
WACC							10%	10%	10%	10%	10%	9%		
Ku							10%	10%	10%	10%	10%	10%		
Solvency Ratios														
Debt to Equity	47%	50%	35%	35%	30%	44%	39%	33%	28%	29%	32%	37%	40%	33%
Equity to Assets	49%	49%	52%	57%	58%	53%	56%	58%	60%	60%	59%	57%	53%	58%

Table 81 – Secil's historical and expected main indicators' ratios. Source: Secil's Annual Reports and own calculations.

Appendix 23 – Portucel's Income Statement

Portucel's Income Statement												
Amounts in Million Euro	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Revenues	**1.029**	**1.081**	**1.147**	**1.132**	**1.095**	**1.385**	**1.488**	**1.512**	**1.456**	**1.501**	**1.521**	**1.508**	**1.529**
Forest (Europe)	5	6	19	8	12	8	3	3	3	3	3	3	3
Paper Pulp (stand alone)	243	258	246	233	160	162	138	134	110	108	101	108	115
Paper and integrated Pulp	712	750	808	814	834	1.069	1.179	1.199	1.159	1.197	1.215	1.185	1.188
Energy (Europe)	62	67	73	77	86	141	167	175	183	192	201	211	222
Other non-allocated (Europe)	7	0	0	0	3	6	1	1	1	1	1	1	1
Other income	**25**	**11**	**20**	**26**	**30**	**15**	**22**	**31**	**32**	**32**	**33**	**33**	**34**
Gains on disposal of non-cur assets	0	9	4	4	3	3	0	0	0	0	0	0	0
Grants	0	0	0	0	0	0	0	9	9	9	9	9	9
Other operating income	22	14	16	22	32	20	21	22	22	23	23	24	24
Change in fair value of biological assets	2	-13	0	0	-5	-8	0	0	0	0	0	0	0
Costs, expenses and losses	**788**	**805**	**837**	**900**	**882**	**1.002**	**1.119**	**1.115**	**1.138**	**1.163**	**1.189**	**1.217**	**1.245**
Cost of inventories sold and consumed	-351	-358	-420	-503	-485	-517	-580	-590	-602	-615	-630	-644	-659
Variation in Production	-3	-1	3	28	1	-6	-39	-3	-3	-4	-5	-10	-10
Cost of materials and services consumed	-296	-300	-288	-282	-289	-337	-358	-364	-372	-380	-389	-398	-407
Payroll costs	-116	-108	-114	-112	-115	-127	-134	-135	-138	-141	-144	-147	-150
Other costs and losses	-20	-11	-7	-17	-16	-14	-14	-18	-18	-21	-22	-20	-18
Provisions	-1	-26	-10	-14	21	-1	6	-4	-5	-1	0	3	-1
EBITDA	**265**	**286**	**331**	**258**	**244**	**399**	**391**	**429**	**350**	**371**	**365**	**325**	**318**
Depreciation, amortization and impairment losses	-132	-77	-70	-77	-112	-121	-125	-124	-125	-126	-128	-129	-130
Operational Results (EBIT)	**133**	**209**	**260**	**181**	**132**	**278**	**266**	**305**	**225**	**244**	**237**	**196**	**187**
Group share of loss/gains of associated companies	0	0	0	0	0	0	1	0	0	0	0	0	0
Interests Income	0	14	31	34	25	4	14	17	20	21	19	17	16
Interests Expenses	-48	-41	-58	-53	-33	-24	-31	-41	-43	-43	-41	-46	-49
Profit before tax	**86**	**183**	**233**	**161**	**125**	**258**	**250**	**282**	**202**	**222**	**215**	**167**	**155**
Corporate tax	*26,2%*	*31,8%*	*33,9%*	*18,8%*	*15,6%*	*18,3%*	*21,6%*	*31,5%*	*31,5%*	*29,5%*	*29,5%*	*29,5%*	*29,5%*
Income tax	-22	-58	-79	-30	-19	-47	-54	-89	-64	-66	-63	-49	-46
Net Income After Tax	63	125	154	131	105	211	196	193	138	157	152	118	109
Minority Interests	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Income	**63**	**125**	**154**	**131**	**105**	**211**	**196**	**193**	**138**	**157**	**152**	**118**	**109**

Table 82 – Portucel's historical and expected Income Statement. Source: Portucel's Annual Reports and own calculations.

Appendix 24 – Portucel's Balance Sheet

Portucel's Balance Sheet												
Amounts in Million Euro	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Non-Current Assets	1.744	1.632	1.578	1.742	2.142	2.115	2.068	2.044	2.019	1.993	1.965	1.936	1.906
Goodwill	377	377	377	377	377	377	377	377	377	377	377	377	377
Other intangible assets	13	2	1	5	2	0	3	5	7	9	12	14	16
Plant, property and equipment	1.153	1.087	1.053	1.220	1.626	1.604	1.530	1.504	1.476	1.448	1.418	1.387	1.354
Biological assets	136	123	123	123	118	111	111	111	111	111	111	111	111
Assets available-for-sale financial assets	0	0	0	0	0	0	0	0	0	0	0	0	0
Investment in associates	0	1	0	0	0	1	2	2	2	2	2	2	2
Deferred tax assets	64	42	24	17	18	23	46	46	46	46	46	46	46
Current Assets	483	661	881	709	419	552	753	927	915	982	1.015	1.023	1.047
Inventories	131	118	142	240	147	173	189	209	213	218	223	228	234
Receivable and other current assets	226	247	247	184	161	175	209	268	258	266	270	267	271
Receivable Grants	0	3	71	16	7	38	33	16	0	0	0	0	0
State and other public entities	36	25	35	47	51	32	55	51	49	53	55	53	51
Cash and cash equivalents	90	269	385	223	53	134	267	382	395	445	468	474	492
Total Assets	2.227	2.293	2.459	2.451	2.561	2.667	2.821	2.971	2.934	2.974	2.980	2.959	2.953
Capital and Reserves	1.032	1.123	1.176	1.246	1.270	1.303	1.478	1.552	1.573	1.633	1.675	1.671	1.686
Share Capital	768	768	768	768	768	768	768	768	768	768	768	768	768
Treasury shares	0	0	0	-24	-27	-27	-42	-42	-42	-42	-42	-42	-42
Fair value reserves	-2	5	8	5	-1	0	-1	-1	-1	-1	-1	-1	-1
Legal Reserves	68	76	81	90	42	47	58	66	76	83	91	98	104
Currency translation reserve	0	0	0	0	0	1	0	0	0	0	0	0	0
Retained earnings from previous years	135	150	166	276	383	304	500	568	634	669	708	731	748
Retained earnings from the year	63	125	154	131	105	211	196	193	138	157	152	118	109
Minority Interests	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Equity	1.032	1.124	1.176	1.246	1.271	1.304	1.478	1.552	1.573	1.633	1.675	1.672	1.687
Non-current liabilities	907	930	880	901	631	958	814	1.013	954	934	905	886	866
Deferred taxes liabilities	88	108	113	127	138	165	193	193	193	193	193	193	193
Pensions and other post-employee benefits	36	34	16	25	20	14	17	17	17	17	17	17	17
Provisions	2	28	38	46	24	25	20	20	20	20	20	20	20
Interest-bearing liabilities	747	738	692	687	421	730	567	766	706	687	658	638	618
Other non-current liabilities	33	22	21	18	28	24	18	18	18	18	18	18	18
Current liabilities	288	239	402	304	659	405	529	406	407	407	400	401	401
Interest-bearing liabilities	78	10	61	16	331	91	164	40	40	40	40	40	40
Payables and other current liabilities	170	184	204	201	232	204	231	255	260	266	272	278	285
Payable Grants	12	4	56	48	41	61	54	45	36	27	18	9	0
State and other public entities	28	40	82	39	56	49	80	66	71	74	70	74	76
Total Liabilities	1.195	1.169	1.282	1.205	1.291	1.364	1.343	1.419	1.361	1.341	1.305	1.287	1.267
Total Equity and Liabilities	2.227	2.293	2.459	2.451	2.561	2.667	2.821	2.971	2.934	2.974	2.980	2.959	2.953

Table 83 – Portucel's historical and expected Balance Sheet. Source: Portucel's Annual Reports and own calculations.

Appendix 25 – Portucel's Cash-Flow Statement

Portucel's Cash-Flow Statement						
Amounts in '000 EUR	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
EBIT	304.797	224.965	244.356	237.026	195.829	187.299
- Taxes	-88.694	-63.559	-65.583	-63.415	-49.223	-45.633
- Financial Grants	-9.017	-9.017	-9.017	-9.017	-9.017	-9.017
+ Depreciation, amortization and impairment losses	123.885	125.155	126.424	127.693	128.962	130.231
Cash Flow from Operations	330.970	277.544	296.180	292.287	266.550	262.879
INVESTMENTS						
- CAPEX	-100.000	-100.000	-100.000	-100.000	-100.000	-100.000
+ Financial Grants	16.439	16.439	0	0	0	0
- Investment in Net Working Capital	-66.152	20.733	-9.813	-9.381	10.187	99
Free Cash Flow to the Firm	181.256	214.715	186.367	182.906	176.737	162.979
FINANCING						
+ Non-current interest bearing liabilities Variation	198.883	-59.479	-19.702	-28.809	-19.702	-19.702
+ Current interest bearing liabilities Variation	-124.471	0	0	0	0	0
- Interest Expenses and Income	-23.227	-23.191	-22.040	-22.060	-28.970	-32.610
- Minority Interests	-6	-4	-1	-2	-3	-5
- Minority Interests	-8	6	5	-2	-1	-1
+ Currency Translate Variation	615	0	0	0	0	0
- Dividends	-119.262	-117.159	-96.748	-109.712	-121.239	-94.106
Changes	114.936	12.197	50.050	23.293	6.201	17.536
Initital	267.432	382.368	394.565	444.615	467.908	474.109
Final	**382.368**	**394.565**	**444.615**	**467.908**	**474.109**	**491.645**
Minimum Cash	72.540	69.849	72.018	72.990	72.370	73.352
Excess Cash	309.828	324.717	372.597	394.918	401.739	418.293

Table 84 – Portucel's expected Cash-Flow Statements. Source: Portucel's Annual Reports and own calculations.

Appendix 26 – Secil's Income Statement

Secil's Income Statement												
Amounts in Million EUR	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Revenue	**467,78**	**564,17**	**598,51**	**572,23**	**535,82**	**506,90**	**488,13**	**493,72**	**509,95**	**527,71**	**548,11**	**571,32**
Sales	435,22	525,75	562,42	538,64	502,72	477,66	458,84	464,10	479,36	496,04	515,22	537,04
Services	33,97	40,17	37,58	34,95	34,50	30,54	27,82	28,14	29,07	30,08	31,24	32,57
Cash Discounts	-1,40	-1,75	-1,48	-1,36	-1,40	-1,30	-1,46	-1,48	-1,53	-1,58	-1,64	-1,71
Portugal	354,88	381,71	387,18	348,23	328,09	302,11	269,82	260,44	261,00	263,16	266,69	271,64
Tunisia	50,32	54,31	63,45	67,30	69,31	61,10	63,99	67,03	70,23	73,56	77,06	80,73
Angola	23,43	31,95	45,59	48,50	27,76	30,42	35,32	40,34	45,40	50,30	55,72	61,73
Lebanon	0,00	51,86	61,11	71,59	77,19	80,77	86,20	92,07	98,32	104,51	111,10	118,10
Cape Verde	0,00	0,00	0,00	5,36	5,37	5,82	6,19	6,76	7,37	7,98	8,65	9,37
Others	39,16	44,33	41,19	31,24	28,09	26,69	26,61	27,09	27,63	28,18	28,89	29,75
Appropriated earnings of associates	2,11	0,92	0,32	0,02	-0,63	0,35	0,35	0,35	0,35	0,35	0,35	0,35
Change in production inventories	-0,97	2,23	7,75	-5,88	0,23	2,59	2,59	2,59	2,59	2,59	2,59	2,59
Own work capitalised	0,26	0,34	0,21	0,69	0,12	0,13	0,13	0,13	0,13	0,13	0,13	0,13
Cost of sales and materials consumed	-117,3	-153,4	-168,5	-149,2	-142,2	-157,8	-137,6	-141,0	-148,5	-156,8	-166,2	-177,0
External supplies and services	-164,9	-182,8	-201,1	-185,4	-182,8	-182,2	-158,9	-162,8	-171,5	-181,1	-192,0	-204,4
Payroll costs	-67,68	-78,56	-80,19	-80,76	-82,60	-81,49	-82,43	-83,38	-84,70	-86,24	-87,81	-89,41
Impairment of inventories	0,05	-0,69	-0,25	0,32	-0,77	-0,69	-0,60	-0,62	-0,65	-0,69	-0,73	-0,77
Impairment of accounts receivable	9,90	-1,06	-2,30	-1,39	-2,83	-3,22	-2,81	-2,88	-3,03	-3,20	-3,40	-3,62
Impairment of non and depreciable investements	0,00	0,00	0,00	0,00	0,00	-0,25	-0,22	-0,22	-0,23	-0,25	-0,26	-0,28
Provisions	-7,33	-0,08	0,03	0,77	-0,14	-3,42	-2,98	-3,05	-3,22	-3,40	-3,60	-3,83
Other costs and losses	-82,99	-17,26	-74,03	-9,80	-9,56	-12,62	-11,01	-11,28	-11,88	-12,54	-13,30	-14,16
Other income and gains	93,06	10,27	77,22	36,44	43,92	63,57	63,57	63,57	63,57	63,57	63,57	63,57
Investment	2,54	1,92	1,38	1,26	1,29	1,29	1,29	1,29	1,29	1,29	1,29	1,29
EBITDA	**134,60**	**145,95**	**159,05**	**179,31**	**159,87**	**133,16**	**159,53**	**156,45**	**154,17**	**151,51**	**148,76**	**145,85**
Depreciation/amortisation costs/reversals	-56,23	-61,49	-56,79	-77,92	-81,93	-85,14	-63,28	-63,90	-65,47	-67,04	-68,61	-70,18
Impairment of non and depreciable/amortisable assets	-0,46	-0,54	-3,08	0,00	0,00	-0,83	0,00	0,00	0,00	0,00	0,00	0,00
Gains/losses on disposal of non-current assets	4,43	0,68	0,59	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
EBIT	**82,33**	**84,59**	**99,77**	**101,39**	**77,94**	**47,19**	**96,26**	**92,55**	**88,69**	**84,47**	**80,15**	**75,67**
Interest and similar income	1,38	2,31	3,04	2,90	2,74	2,99	2,99	2,99	2,99	2,99	2,99	2,99
Interest and similar expense	-6,45	-11,78	-11,69	-8,66	-7,64	-9,16	-10,63	-9,58	-8,38	-9,06	-10,13	-11,70
Profit before taxation	**77,26**	**75,13**	**91,12**	**95,62**	**73,05**	**41,02**	**88,62**	**85,96**	**83,31**	**78,40**	**73,01**	**66,96**
Corporate income tax	-17,95	-19,76	-20,79	-12,89	-16,55	-10,23	-22,09	-21,43	-20,77	-19,54	-18,20	-16,69
Corporate Tax (%)	*23,2%*	*26,3%*	*22,8%*	*13,5%*	*22,7%*	*24,9%*	*24,9%*	*24,9%*	*24,9%*	*24,9%*	*24,9%*	*24,9%*
Consolidated net income	**59,31**	**55,37**	**70,33**	**82,73**	**56,49**	**30,80**	**66,53**	**64,54**	**62,54**	**58,86**	**54,81**	**50,27**
Consolidated net income attributable to:												
Company's Shareholders	58,13	50,41	62,78	70,11	47,34	22,93	59,76	56,60	54,11	50,28	46,90	42,57
Minority interests	-0,22	4,96	7,56	12,62	9,15	6,57	6,77	7,94	8,43	8,58	7,91	7,70

Table 85 – Secil's historical and expected Income Statement. Source: Secil's Annual Reports and own calculations.

Appendix 27 – Secil's Balance Sheet

Secil's Balance Sheet												
Amounts in Million EUR	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Non-current assets	**564,70**	**594,23**	**625,56**	**562,96**	**562,68**	**610,27**	**599,83**	**588,75**	**576,11**	**561,90**	**546,13**	**528,78**
Property, Plant and Equipment	364,73	441,01	436,33	414,63	411,39	437,12	427,45	416,20	403,40	389,02	373,09	355,59
Investment property	0,36	0,35	0,33	1,36	1,35	1,33	1,50	1,67	1,84	2,00	2,16	2,32
Goodwill	113,82	126,90	124,15	123,01	122,44	146,12	146,12	146,12	146,12	146,12	146,12	146,12
Intangible assets	16,90	0,11	40,03	1,99	5,84	0,94	0,00	0,00	0,00	0,00	0,00	0,00
Financial investments - equity	38,01	1,15	1,10	3,38	2,99	5,52	5,52	5,52	5,52	5,52	5,52	5,52
Other receivables	0,00	0,00	0,00	2,17	2,07	2,70	2,70	2,70	2,70	2,70	2,70	2,70
Deferred tax assets	22,79	18,45	14,29	12,94	14,26	16,11	16,11	16,11	16,11	16,11	16,11	16,11
Other financial assets	8,08	6,27	9,31	3,47	2,34	0,44	0,44	0,44	0,44	0,44	0,44	0,44
Current assets	**199,72**	**244,85**	**234,83**	**247,68**	**263,85**	**296,26**	**332,60**	**353,47**	**371,50**	**421,54**	**476,94**	**538,66**
Inventories	53,67	69,80	95,31	80,43	100,39	101,74	77,25	79,14	83,37	88,02	93,32	99,35
Trade receivables	77,54	84,60	81,38	82,04	75,88	72,13	75,44	76,30	78,81	81,56	84,71	88,30
Advances to suppliers	0,00	0,00	0,00	1,52	1,88	1,22	1,22	1,22	1,22	1,22	1,22	1,22
State and other public entities	6,70	16,90	12,86	7,39	7,19	13,64	9,68	10,25	9,80	9,94	10,87	11,94
Other receivables	22,87	18,17	9,89	8,69	6,47	7,04	7,36	7,44	7,69	7,95	8,26	8,61
Deferred assets	1,13	1,07	1,23	1,35	1,50	3,43	3,43	3,43	3,43	3,43	3,43	3,43
Other financial assets	0,00	0,00	0,00	0,00	0,00	1,57	1,57	1,57	1,57	1,57	1,57	1,57
Non-current assets held for sale	0,00	0,00	0,00	0,00	0,00	30,03	30,03	30,03	30,03	30,03	30,03	30,03
Cash and cash equivalents	37,80	54,30	34,16	66,27	70,54	65,45	126,62	144,08	155,57	197,81	243,52	294,20
Total assets	**764,42**	**839,08**	**860,39**	**810,64**	**826,53**	**906,53**	**932,43**	**942,23**	**947,62**	**983,45**	**1.023,1**	**1.067,4**
Capital and reserves	**300,77**	**311,87**	**330,42**	**329,16**	**368,27**	**385,35**	**396,77**	**426,55**	**451,34**	**471,40**	**486,23**	**496,10**
Share Capital	264,60	264,60	264,60	264,60	264,60	264,60	264,60	264,60	264,60	264,60	264,60	264,60
Treasury shares	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61	-22,61
Legal reserves	25,09	28,00	30,52	33,66	37,17	39,53	40,68	43,67	46,50	49,20	51,72	54,15
Other reserves	54,21	76,04	86,41	83,52	113,15	129,37	145,59	161,81	178,04	194,26	210,48	226,70
Retained earnings	25,77	22,92	28,55	28,76	29,88	30,09	24,15	34,71	40,45	41,58	37,68	28,90
Revaluation reserve	16,82	16,02	15,36	15,14	14,94	14,66	14,66	14,66	14,66	14,66	14,66	14,66
Other changes in Capital and	-63,11	-73,10	-72,40	-73,91	-68,85	-70,30	-70,30	-70,30	-70,30	-70,30	-70,30	-70,30
Consolidated net income for the	58,13	50,41	62,78	70,11	47,34	22,93	59,76	56,60	54,11	50,28	46,90	42,57
Equity attributable to	**358,90**	**362,28**	**393,20**	**399,27**	**415,61**	**408,28**	**456,53**	**483,15**	**505,45**	**521,67**	**533,13**	**538,67**
Minority interests	13,60	51,30	57,43	62,13	67,49	67,82	67,82	67,82	67,82	67,82	67,82	67,82
Total equity	**372,50**	**413,58**	**450,63**	**461,40**	**483,10**	**476,10**	**524,35**	**550,96**	**573,27**	**589,49**	**600,95**	**606,49**
Non-current liabilities	**231,78**	**214,94**	**178,95**	**137,51**	**208,04**	**246,50**	**226,51**	**206,52**	**183,66**	**196,62**	**216,95**	**246,90**
Provisions	12,11	14,40	14,73	15,58	16,30	22,21	22,21	22,21	22,21	22,21	22,21	22,21
Related parties	0,00	0,00	0,00	2,67	1,00	0,13	0,13	0,13	0,13	0,13	0,13	0,13
Interest-bearing loans and	132,75	121,91	89,63	53,90	121,44	159,76	139,77	119,78	96,92	109,88	130,20	160,16
Post-employment benefit	33,21	28,38	23,13	22,09	23,58	18,90	18,90	18,90	18,90	18,90	18,90	18,90
Deferred tax liabilities	51,48	48,11	48,75	42,24	41,46	41,24	41,24	41,24	41,24	41,24	41,24	41,24
Other accounts payable	0,00	0,00	0,00	0,37	1,81	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Other financial liabilities	2,23	2,15	2,70	0,66	2,45	4,25	4,25	4,25	4,25	4,25	4,25	4,25
Current liabilities	**160,14**	**210,56**	**230,82**	**211,72**	**135,38**	**183,93**	**181,57**	**184,74**	**190,69**	**197,34**	**205,17**	**214,05**
Trade payables	39,18	44,74	39,58	37,54	38,87	48,89	43,28	44,34	46,71	49,31	52,29	55,67
Advances from customers	0,00	0,00	0,00	1,10	1,77	1,84	1,84	1,84	1,84	1,84	1,84	1,84
State and other public entities	26,32	35,83	38,37	33,41	32,71	36,49	30,22	31,40	32,90	34,68	36,94	39,48
Related parties	2,25	2,60	1,00	1,36	1,37	2,98	2,64	2,70	2,84	3,00	3,18	3,39
Interest-bearing loans and	43,01	82,87	69,28	107,17	24,83	48,11	62,55	62,55	62,55	62,55	62,55	62,55
Other accounts payable	39,99	36,49	76,07	31,08	35,71	39,41	34,88	35,74	37,65	39,74	42,14	44,87
Liabilities of non-curren held for	0,00	0,00	0,00	0,00	0,00	5,71	5,71	5,71	5,71	5,71	5,71	5,71
Deferred liabilities	9,39	8,03	6,52	0,05	0,12	0,34	0,30	0,31	0,33	0,35	0,37	0,39
Other financial liabilities	0,00	0,00	0,00	0,00	0,00	0,16	0,16	0,16	0,16	0,16	0,16	0,16
Total liabilities	**391,92**	**425,50**	**409,76**	**349,24**	**343,42**	**430,43**	**408,08**	**391,27**	**374,35**	**393,96**	**422,12**	**460,95**
Total equity and liabilities	**764,42**	**839,08**	**860,39**	**810,64**	**826,53**	**906,53**	**932,43**	**942,23**	**947,62**	**983,45**	**1.023,1**	**1.067,4**

Table 86 – Secil's historical and expected Balance Sheet. Source: Secil's Annual Reports and own calculations.

Appendix 28 – Secil's Cash-Flow Statement

Secil's Cash-Flow Statement						
Amounts in '000 EUR	2012E	2013E	2014E	2015E	2016E	2017E
Operational Results (EBIT)	96.255	92.550	88.694	84.467	80.145	75.670
- Corporate Income Taxes	-22.091	-21.429	-20.767	-19.544	-18.200	-16.692
+ Depreciation, Amoritization and Impairment losses	63.276	63.905	65.473	67.042	68.610	70.179
+ Variation of Provisions	0	0	0	0	0	0
Cash Flow from Operations	**137.441**	**135.026**	**133.401**	**131.965**	**130.555**	**129.157**
INVESTMENTS						
- CAPEX	52.833	52.833	52.833	52.833	52.833	52.833
- Investment in Net Working Capital	-9.100	559	1.516	2.160	3.027	3.489
Free Cash Flow to the Firm	**93.707**	**81.634**	**79.052**	**76.972**	**74.695**	**72.835**
FINANCING						
+ Non Current Interest Bearing Liabilities Variation	-19.989	-19.989	-22.863	12.960	20.327	29.959
+ Current Interest Bearing Liabilities Variation	14.437	0	0	0	0	0
- Interest Expenses	-10.630	-9.580	-8.378	-9.059	-10.127	-11.701
+ Interest Income	2.994	2.994	2.994	2.994	2.994	2.994
- Minority Interests	-6.771	-7.937	-8.434	-8.580	-7.907	-7.700
+ Other Equity changes	0	0	0	0	0	0
- Dividends	-11.508	-29.984	-31.806	-34.056	-35.442	-37.032
Changes	61.169	17.459	11.492	42.244	45.705	50.680
Initial	65.449	126.618	144.077	155.568	197.812	243.517
Final	126.618	144.077	155.568	197.812	243.517	294.197
Minimum Cash	27.861	28.180	29.107	30.120	31.285	32.610
Excess Cash	98.757	115.896	126.461	167.692	212.232	261.587

Table 87 – Secil's expected Cash-Flow Statement. Source: Secil's Annual Reports and own calculations.

Appendix 29 – Fernández's (2004, 2007a) APV Approach

Portucel's DCF Valuation - APV Fernández (2004, 2007a)						
	2012E	2013E	2014E	2015E	2016E	2017E
Free Cash Flow to the Firm	**178.526.166**	**209.172.329**	**180.516.553**	**173.308.632**	**165.562.959**	**150.715.578**
Ku (Equation 12)	7,6%					
Kd	5,3%					
T	31,5%	31,5%	29,5%	29,5%	29,5%	29,5%
TGR	1,52%					
PV FCFF at ku	178.526.166	194.441.002	155.985.515	139.210.199	123.622.539	104.610.732
Explicit Period Vu	896.396.155					
Terminal Value	1.906.457.604					
Vu	**2.802.853.758**					
Yearly VTS	14.445.836	8.253.327	7.288.961	3.292.601	2.852.256	2.411.910
Discounted VTS		7.672.072	6.298.438	2.644.783	2.129.722	1.674.091
Terminal VTS	26.081.644					
PV VTS (Equation 14)	**60.946.587**					
Bankruptcy Costs	30%					
Default Probability	19,48%					
PV BC	**163.798.774**					
Enterprise Value	**2.700.001.571**					
+ Excess Cash	154.648.217					
- Debt	605.310.398					
- Unfunded Retirement Liabilities	16.682.785					
- Minority Interests	212.678					
- Other Non-Current Liabilities	18.109.324					
- Provisions	19.602.592					
Equity	**2.040.083.795**					
Number of Shares	**745.400.068**					
Price per Share	**2,74**					
Equity Target Return	42%					
Dissertation Return	-7%					

Table 88 – Portucel's DCF Valuation according to Fernández's (2004, 2007a) Approach. Source: Fernández (2004, 2007a) and own calculations.

Secil's DCF Valuation - APV Fernández (2004, 2007a)						
Amounts in Euro	2012E	2013E	2014E	2015E	2016E	2017E
Free Cash Flow to the Firm	**93.707.475**	**81.634.397**	**79.052.258**	**76.448.485**	**74.171.553**	**72.311.603**
ku (Equation 12)	10,27%					
kd	6,27%					
T	24,93%	24,93%	24,93%	24,93%	24,93%	24,93%
TGR	1,00%					
PV FCFF at ku	93.707.475	74.033.245	65.016.184	57.020.323	50.170.885	44.358.410
Explicit Period Vu	384.306.523					
Terminal Value	438.431.492					
Vu	**822.738.014**					
Yearly VTS	5.177.928	4.666.343	4.081.192	3.389.137	3.909.383	4.676.156
Discounted VTS		4.231.850	457.081	345.109	361.940	393.621
Terminal VTS	28.351.935					
PV VTS (Equation 14)	**39.319.465**					
Bankruptcy Costs	30%					
Default Probability	19,48%					
PV BC	**48.080.810**					
Enterprise Value	**813.976.670**					
+ Excess Cash	98.757.056					
- Debt	202.312.669					
- Unfunded Retirement Liabilities	0					
- Minority Interests	67.816.941					
- Other Non-Current Liabilities	4.252.475					
- Provisions	22.214.671					
Equity	**616.136.970**					
Equity Target Return	19%					
Dissertation Return	-4%					

Table 89 – Secil's DCF Valuation according to Fernández's (2004, 2007a) Approach. Source: Fernández (2004, 2007a) and own calculations.

Appendix 30 – WACC's Approach

Portucel's DCF Valuation - WACC						
Amounts in EUR	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Free Cash Flow to the Firm	**226.076.522**	**259.355.383**	**230.861.724**	**227.231.962**	**220.894.732**	**206.967.702**
WACC	6,7%	6,8%	6,9%	6,9%	6,9%	7,0%
Ke	8,5%					
Kd	5,3%					
T	31,5%	31,5%	29,5%	29,5%	29,5%	29,5%
TGR	1,52%					
PV FCFF at WACC	226.076.522	242.834.384	202.142.348	185.955.209	168.896.190	147.767.655
Explicit Period Vl	1.173.672.308					
Terminal Value	3.020.947.942					
Enterprise Value	**4.194.620.250**					
Non-Operational Assets						
+ Excess Cash	354.648.217					
Non-Equity Claims						
- Debt	805.310.398					
- Unfunded Retirement Liabilities	16.682.785					
- Minority Interests	212.678					
- Other Non-Current Liabilities	18.109.324					
- Provisions	19.602.592					
Equity	**3.334.702.473**					
Number of Shares	**745.400.068**					
Price per Share	**4,47**					
Equity Target Return	132%					
Dissertation Return	52%					

Table 90 – Portucel's DCF Valuation according to WACC's Approach. Source: own calculations.

Secil's DCF Valuation - WACC						
Amounts in EUR	**2012E**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Free Cash Flow to the Firm	**93.707.475**	**81.634.397**	**79.052.258**	**76.972.382**	**74.695.449**	**72.835.499**
Ke	11,44%					
WACC	9,55%	9,68%	9,85%	9,76%	9,61%	9,41%
Kd	6,27%					
T	24,93%	24,93%	24,93%	24,93%	24,93%	24,93%
TGR	1,00%					
PV FCFF at WACC	93.707.475	74.520.646	65.875.075	58.552.465	51.868.994	46.170.035
Explicit Period VL	390.694.690					
Terminal Value	498.105.562					
Enterprise Value	**888.800.252**					
Non-Operational Assets						
+ Excess Cash	98.757.056					
Non-Equity Claims						
- Debt	202.312.669					
- Unfunded Retirement Liabilities	0					
- Minority Interests	67.816.941					
- Other Non-Current Liabilities	4.252.475					
- Provisions	22.214.671					
Equity	**690.960.552**					
Equity Target Return	34%					
Dissertation Return	8%					

Table 91 – Secil's DCF Valuation according to WACC's Approach. Source: own calculations.

Appendix 31 – Portucel's choice of Peer Group

In order to proceed with the peer group's choice for Portucel, three main drivers were taken into account. As referred in section 2.2.3., ROIC and growth are the main value drivers for every company and the capital structure is very characteristic within an industry. It was impossible to compute forecasted drivers for each similar company therefore, the most recent data (historical multiples) was considered.

To establish a criteria of similarity, a maximum and a minimum range was created for each driver depending on the Portucel's values – 5% for growth and ROIC; 2,5% for WACC and 10% for net debt over equity. The comparable companies within the Portucel's range are considered as similar and underlined in green. Every company is allowed to fail more than one of the five drivers displayed in table 92 however, the majority fulfilled the criteria.

	Growth	ROIC		Capital Structure	
	Sales Gr T12M	ROIC T12M	ROIC (2011)	WACC	Net D/E
PORTUCEL	**7,39%**	**9,05%**	**9,05%**	**11,73%**	**31,4%**
Maximum Range	**12,39%**	**14,05%**	**14,05%**	**14,23%**	**41%**
Minimum Range	**2,39%**	**4,05%**	**4,05%**	**9,23%**	**21%**
INTERNATIONAL PAPER CO	3,40%	10,56%	10,56%	8,84%	138,2%
SAPPI LIMITED	10,86%	0,00%		10,77%	129,9%
OJI PAPER CO LTD	2,78%	2,35%	2,35%	4,15%	159,8%
M-REAL OYJ-B SHARES	-4,61%	0,00%		0,00%	116,9%
HOLMEN AB-B SHARES	6,11%	13,39%	13,39%	7,03%	31,0%
NORSKE SKOGINDUSTRIER ASA	-0,43%	0,00%		5,95%	104,4%
EMPRESAS CMPC SA	13,68%	5,03%	5,03%	9,86%	32,0%
FIBRIA CELULOSE SA-SPON ADR	-6,83%	0,00%		8,88%	60,9%
SUZANO PAPEL E CELULO	7,40%	0,00%		14,51%	58,9%
RIPASA SA PAPEL E CELUL	-2,18%	3,77%	3,77%	11,48%	46,2%
UPM-KYMMENE OYJ	12,82%	0,00%		9,84%	54,1%
STORA ENSO OYJ-R SHS	6,49%	4,97%	4,97%	9,17%	53,6%
MONDI SWIECIE SA	22,44%	20,37%	20,37%	11,12%	-3,8%
TORRASPAPEL SA	24,60%	0,00%		14,89%	0,0%
SHANDONG SUN PAPER INDUSTR	8,83%	6,52%	6,52%	8,62%	159,9%
ABITIBIBOWATER INC	0,21%	5,73%	5,73%	8,33%	6,0%

Table 92 – Portucel's peer group choice. Source: Bloomberg and own calculations.

Appendix 32 – Portucel's Multiples Valuation

With the harmonic average of the peer group calculated, it is only necessary to multiply the multiple by the respective historical or forecasted driver. As the EV/EBITDA's multiple yields the enterprise value, it was necessary to add the non-operational assets and subtract the non-equity claims as previously explained on the DCF valuation (see table 93).

Portucel's Multiples Valuation	EV/EBITDA		Price Earnings Ratio		P/BV
	EV/EBITDA T12M	EV/EBITDA 2012	P/E 2011	Est P/E 2012	P/BV 2011
INTERNATIONAL PAPER CO	6,65	5,53	10,81	8,32	1,79
SAPPI LIMITED	5,56	3,94	10,65	7,68	1,06
OJI PAPER CO LTD	8,22	7,29	10,10	8,77	0,67
M-REAL OYJ-B SHARES		6,24		10,16	0,92
HOLMEN AB-B SHARES	3,29	6,67	13,42	12,54	0,81
NORSKE SKOGINDUSTRIER	5,10	4,95			0,11
EMPRESAS CMPC SA	10,73	9,85	17,44	16,13	1,11
FIBRIA CELULOSE SA-SPON	8,96				0,48
SUZANO PAPEL E CELULO	6,81	8,35			0,16
RIPASA SA PAPEL E CELUL	369,96				3,09
UPM-KYMMENE OYJ	7,93	5,53	10,90	9,26	0,65
STORA ENSO OYJ-R SHS	6,71	5,46	10,16	8,67	0,65
MONDI SWIECIE SA	5,71	6,94	11,48	12,53	
TORRASPAPEL SA					
SHANDONG SUN PAPER		6,13	9,35	8,55	1,52
ABITIBIBOWATER INC	3,32	2,99		10,75	0,33
Harmonic Average	5,71	5,81	11,46	9,61	1,03
	Portucel's EV		Portucel's Equity		
'000 EUR	2.229.131	2.490.872	2.249.901	1.857.699	1.597.639
Non-Operational Assets					
+ Excess Cash	309.828	309.828			
Non-Equity Claims					
- Debt	805.310	805.310			
- Unfunded Retirement Liabilities	16.683	16.683			
- Minority Interests	213	213			
- Other Non-Current Liabilities	18.109	18.109			
- Provisions	19.603	19.603			
Equity	1.679.042	1.940.782	2.249.901	1.857.699	1.597.639
Number of Shares	745.400	745.400	745.400	745.400	745.400
Price per Share	2,25	2,60	3,02	2,49	2,14

Table 93 – Portucel's multiples valuation. Source: Bloomberg and own calculations.

All multiples yield a higher price per share than the one from July 2, 2012, indicating that Portucel is currently undervalued.

Appendix 33 – Secil's choice of Peer Group

In order to proceed with the peer group's choice for Secil, two main drivers were taken into account. As referred in section 2.2.3., ROIC and growth are the main value drivers for every company. Although the capital structure is also very characteristic within an industry, it was not possible to consider the WACC as a driver, but the net debt over equity was considered. It was also impossible to compute forecasted drivers for each similar company therefore, the most recent data (historical multiples) was considered.

To establish a criteria of similarity, a maximum and a minimum range was created for each driver depending on Secil's values – 5% for growth and ROIC and 10% for the capital structure. The comparable companies within Secil's range are considered as similar and underlined in light blue. Every company is allowed to fail more than one of the four drivers displayed in table 94 however, the majority fulfilled the criteria.

	Growth			Capital Structure
	Sales Gr T12M	ROIC (2011)	ROE (2011)	Net D/E
Secil	**-5,40%**	**5,63%**	**6,47%**	**30%**
Maximum Range	**-0,40%**	**10,63%**	**11,47%**	**40%**
Minimum Range	**-10,40%**	**0,63%**	**1,47%**	**20%**
CIMPOR-CIMENTOS DE PORTUGAL	1,60%	5,83%	9,2%	73,0%
HOLCIM LTD-REG	-4,20%	3,17%	1,6%	59,8%
ITALCEMENTI SPA	-1,47%	-0,83%	-0,1%	
HEIDELBERGCEMENT AG	9,69%	4,38%	2,6%	57,6%
SA DES CIMENTS VICAT-VICAT	12,51%	5,63%	7,7%	
DYCKERHOFF AG -PRF	13,22%	4,68%	3,2%	-20,3%
CIMENTS FRANCAIS	-3,81%	2,90%	6,3%	
ASLAN CIMENTO AS	6,17%	7,14%	5,9%	6,4%
HOLCIM INDONESIA TBK PT	26,23%	12,36%	14,9%	3,2%
LAFARGE MALAYAN CEMENT BHD	9,79%	8,52%	10,8%	-5,6%
BUZZI UNICEM SPA	5,25%	2,59%	0,5%	42,1%
AMBUJA CEMENTS LTD	15,44%	12,25%	16,0%	
TITAN CEMENT CO. S.A.	-19,18%	2,71%	-0,3%	48,6%
CIMENTS DU MAROC	9,25%	14,06%	17,8%	
INDOCEMENT TUNGGAL PRAKARSA	24,69%	21,92%	24,4%	-45,1%
KONYA CIMENTO SANAYII AS	10,04%	5,39%	11,8%	-52,0%

Table 94 – Secil's peer group choice. Source: Bloomberg and own calculations.

Appendix 34 – Secil's Multiples Valuation

The multiples valuation was computed by calculating the harmoninc average of the peer group (previously chosen) and then, the multiple was multiplied by the respective historical or forecasted driver. As the EV/EBITDA's multiple yields the enterprise value, it was necessary to add the non-operational assets and subtract the non-equity claims (previously explained on the DCF valuation) in order to obtain the equity value (see table 95).

		EV/EBITDA		Price Earnings Ratio	
		EV/EBITDA T12M	EV/EBITDA '12	P/E 2011	Est P/E '12
CIMPOR-CIMENTOS DE PORTUGAL		6,35	5,30	11,07	7,89
HOLCIM LTD-REG		8,07	6,68	61,40	12,07
ITALCEMENTI SPA		5,46	5,60		14,98
HEIDELBERGCEMENT AG		6,52	5,96	19,23	9,58
SA DES CIMENTS VICAT-VICAT		6,59	5,52	10,32	7,88
DYCKERHOFF AG -PRF		2,24	2,83	23,76	13,81
CIMENTS FRANCAIS		5,14	4,74	16,30	10,06
ASLAN CIMENTO AS		135,50	N/A	326,40	N/A
HOLCIM INDONESIA TBK PT		8,12	6,56	17,36	12,74
LAFARGE MALAYAN CEMENT BHD		10,56	9,02	18,92	15,66
BUZZI UNICEM SPA		6,88	5,34		15,26
AMBUJA CEMENTS LTD		12,19	9,10	21,93	15,33
TITAN CEMENT CO. S.A.		9,57	7,80		19,67
CIMENTS DU MAROC		7,28	6,87	12,43	11,43
INDOCEMENT TUNGGAL PRAKARSA		11,33	8,43	17,91	13,32
KONYA CIMENTO SANAYII AS		29,55	N/A	38,94	N/A
Harmonic Average		**5,30**	**5,14**	**17,00**	**10,35**
		Secil's EV		Secil's Equity	
EUR		**705.316.226**	**819.799.836**	**523.559.072**	**688.281.717**
Non-Operational Assets					
+ Excess Cash		98.757.056	98.757.056		
Non-Equity Claims					
- Debt		202.312.669	202.312.669		
- Unfunded Retirement Liabilities		0	0		
- Minority Interests		67.816.941	67.816.941		
- Other Non-Current Liabilities		4.252.475	4.252.475		
- Provisions		22.214.671	22.214.671		
Equity		**507.476.526**	**621.960.135**	**523.559.072**	**688.281.717**

Table 95 – Secil's multiples valuation. Source: Bloomberg and own calculations.

Comparing both historical and forecasted EV/EBITDA and PER, most multiples point that Secil is undervalued (EUR 515.647.303), along with the DCF valuation computed in section 4.4.2..

Appendix 35 – Secil's revenues and costs comparison with MillenniumIB

Although it was not possible to make an independent valuation for each country where Secil operates due to the lack of information on Secil's annual reports, it was possible to extract information regarding quantities sold, revenues and operating costs by country. Table 96 displays the forecasted results in this dissertation and MillenniumIB. It is important to notice that it is missing the results related to the "Others". As MillenniumIB did not considered it separately, it was assumed that these results would be included in the Portuguese results.

		2010	2011	2012E	2013E	2014E	2015E
Portugal	Dissertation - Revenues	356,2	328,8	296,4	287,5	288,6	291,3
	Millennium IB - Revenues	355,5	328,8	314,1	319,2	325,7	335,3
	Dissertation - Op. Costs	304,3	310,3	261,2	256,3	260,6	266,7
	Millennium IB - Op. Costs	272,2	261,2	242,5	244,7	247,2	252,1
	Dissertation - EBITDA	51,9	18,5	35,2	31,2	28,0	24,7
	Millennium IB - EBITDA	83,3	67,6	71,6	74,5	78,5	83,2
Tunisia	Dissertation - Revenues	69,3	61,1	64,0	67,0	70,2	73,6
	Millennium IB - Revenues	69,3	61,2	66,4	72	78,9	88,5
	Dissertation - Op. Costs	46,5	49,3	48,9	53,3	58,0	63,0
	Millennium IB - Op. Costs	62,9	53,2	57,4	60,5	64,4	70,1
	Dissertation - EBITDA	22,8	11,8	15,1	13,8	12,3	10,6
	Millennium IB - EBITDA	6,4	8	9	11,5	14,5	18,4
Lebanon	Dissertation - Revenues	77,2	80,8	86,2	92,1	98,3	104,5
	Millennium IB - Revenues	77,1	80,8	83,9	87	90,2	93,5
	Dissertation - Op. Costs	41,9	48,1	49,7	53,4	57,4	61,3
	Millennium IB - Op. Costs	73,7	54,8	56	58,1	60,1	62,3
	Dissertation - EBITDA	35,3	32,7	36,5	38,7	40,9	43,2
	Millennium IB - EBITDA	3,4	26	27,9	28,9	30,1	31,2
Angola	Dissertation - Revenues	27,8	30,4	35,3	40,3	45,4	50,3
	Millennium IB - Revenues	27,8	30,4	29,3	28,3	27,4	26,4
	Dissertation - Op. Costs	23,6	28,6	31,2	36,1	41,0	45,8
	Millennium IB - Op. Costs	27,8	28,2	26,4	24,8	23,3	21,6
	Dissertation - EBITDA	4,2	1,9	4,2	4,3	4,4	4,5
	Millennium IB - EBITDA	0	2,2	2,9	3,5	4,1	4,8
Cape Verde	Dissertation - Revenues	5,4	5,8	6,2	6,8	7,4	8,0
	Millennium IB - Revenues	6,1	5,7	7,5	6,8	6,2	5,5
	Dissertation - Op. Costs	4,6	5,4	5,6	6,2	6,8	7,4
	Millennium IB - Op. Costs	8,1	11,4	9,1	8,5	7,9	7,3
	Dissertation - EBITDA	0,8	0,5	0,6	0,6	0,6	0,6
	Millennium IB - EBITDA	-2	-5,7	-1,6	-1,7	-1,7	-1,8

Table 96 – Secil's expected results comparison by country. Source: Secil's Annual Reports, own calculations and MillenniumIB (2012).

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